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Monitoring the Attitudes and Perceptions of Junior Officers: The Longitudinal Research on Officer Careers (LROC) Survey

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and Ani S. DiFazio**

Human Resources Research Organization

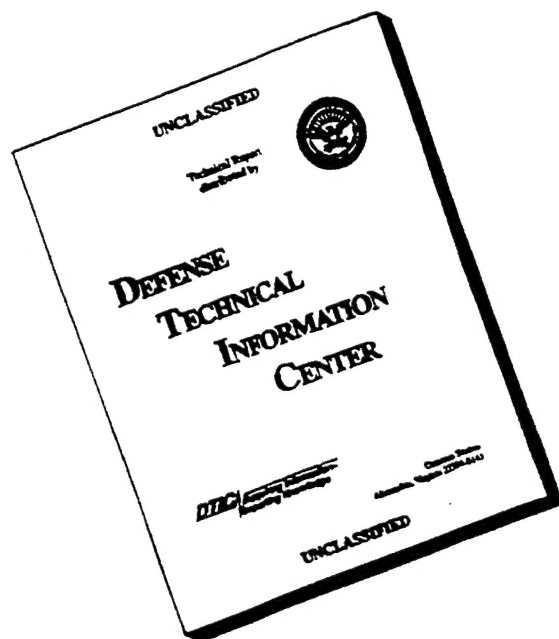
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**A Field Operating Agency Under the Jurisdiction
of the Deputy Chief of Staff for Personnel**

**EDGAR M. JOHNSON
Director**

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14. ABSTRACT (Maximum 200 words): The purpose of this study was to assist in the transition of the Longitudinal Research on Officer Careers (LROC) survey from a research to an operational tool. Interviews were conducted with communities to determine their information needs concerning junior officer careers. Sample LROC data analyses were conducted to show how data might be applied to policy and operational information needs. Analyses included interindividual change, cluster analysis, and event history analysis. Composites of survey items were used in the analyses; these included composites on satisfaction with work, supervisors, and peers as well as on characteristics of the job and the relative attraction of an Army career. Significant predictors of officer retention included retention propensity, a positive comparison between military and civilian jobs, and perceived less ease in entering the civilian job market. Specific recommendations were made on how to transition the survey effort to an operational environment.					
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FOREWORD

Consistent with its tradition of conducting quality research in the areas of leadership, leader development, and the personnel management of Army leaders, the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) initiated a program of research on officer careers and career decision-making. As part of the program, ARI developed survey instruments and a longitudinal database on junior Army officers, under the title "Longitudinal Research on Officer Careers (LROC)". Lead sponsor on this research has been the Directorate of Military Personnel Management, under the Deputy Chief of Staff for Personnel.

As the LROC research matured, the decision was made to transition LROC into an operational effort so that it could respond more directly to the operational needs of the personnel and leadership communities. In particular, the LROC transition was needed so that those in interested and relevant personnel offices could better obtain facts and information for policy and operational analyses and decisions. To assist in this transition, the current study was conducted so that: the personnel and leadership communities' needs could be identified, sample analyses could be carried out as guides, and suggestions could be made on how to design the LROC effort for an operational environment. The results of this study were briefed to representatives of the research and personnel communities as the final in-process review at ARI on June 7, 1995.

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MONITORING THE ATTITUDES AND PERCEPTIONS OF JUNIOR OFFICERS: THE LONGITUDINAL RESEARCH ON OFFICER CAREERS (LROC) SURVEY

EXECUTIVE SUMMARY

Requirement:

The Longitudinal Research on Officer Careers (LROC) survey is designed to assess the attitudes and perceptions of junior officers. The LROC was administered by mail in 1988, 1989, 1990, and 1992 to a stratified random sample of officers commissioned from 1980 onward. The latter three surveys were administered to 1,000 newly commissioned officers and to all officers who had received a survey previously. Approximately 10,000 officers were surveyed each year. By obtaining information on officers' attitudes and perceptions over time, the LROC provides a prime vehicle for better understanding the impact of policy and external influences on the career intentions and decision-making processes of Army officers. The purpose of the current study was to assist in transitioning the LROC survey project from a research to an operations environment by (a) assessing the needs of those working in the relevant personnel and leadership operational areas, (b) showing them how analyses of existing LROC data might be carried out to address those needs, and (c) recommending how the LROC survey might best be designed and used as an operational tool.

Procedure:

The current study comprised four substantive tasks (plus an initial management task):

Task 2: Conduct Sample Analyses to show how the LROC database could be used to address key policy issues. The primary effort involved the development of a structural equation model of retention propensity and retention behavior. The results of this task are reported separately (Byrnes & Hoover, 1995).

Task 3: Determine Key Issues that were of primary concern to members of the personnel and leader development communities. Interviews were conducted with key representatives of the personnel and leader development communities. The responses of interviewees were analyzed through content analysis.

Task 4: Analyze LROC Data to address a key issue raised during the interviews—the predictors of officer retention. The primary analysis was done by developing an event history model of junior officer separation behavior through the first four years of service. Additional analyses included a factor analysis, a cluster analysis, and the modeling of interindividual change.

Task 5: Recommend Design Changes for the Future LROC survey project for its transition to an operational environment. Recommendations were developed by examining the past survey instruments, the data obtained from them, the information obtained from the interviews in Task 3, and the lessons learned in analyzing data under Tasks 2 and 4. The recommendations also reflected discussions with Army Research Institute personnel, especially during in-process reviews held on this study.

Findings:

Determine Key Issues. The issues of greatest interest to the interviewed members of the personnel and leadership communities were the following: What impact will the effects of the drawdown, the concomitant erosion of benefits, and newfound uncertainties regarding career goals have on officer retention? What motivates officers? Do they know the path or paths to success? What are their expectations regarding achievement of success? How and when does commitment to the Army evolve? Who is likely to cut an Army career short and why? What are the particular experiences and perceptions of minority and female officers and others toward them?

There was unanimous agreement that reports from an operational LROC project should be user- and policy-friendly—that is, short (2-5 pages), attractively designed, and issue- or topic-focused. Long, involved reports or ones focusing on methodology were not seen as likely to be read or to garner support for the project.

Analyses of LROC Data. Initially, 10 sets of LROC survey items were found to be acceptable psychometrically for use as composites (or scales). These item composites were labelled (a) Satisfaction with Supervision, (b) Satisfaction with Peers, (c) Satisfaction with Promotions, (d) Satisfaction with the Work Itself, (e) Tolerance of Military Demands, (f) Civilian vs. Army Standard of Living, (g) Civilian Market Ease of Entry, (h) Characteristics of the Job, (i) Organizational Identification, and (j) Retention Propensity. These composites, several demographic variables, and an index of choice of branch assignment were the constructs used in the analyses.

An analysis of interindividual change was conducted to examine whether (a) profiles of scores on the LROC composites over time varied across the officers in the longitudinal sample, and (b) if so, whether certain individual characteristics might account for this variation. All composites evidenced significant variation in officer profiles over time. The individual characteristics were occasionally helpful in explaining profile mean level differences but not profile shape over time.

A cluster analysis was conducted as an alternative way of examining officer score profiles over time that can identify groups of profiles that cannot be described by a monotonic function.

Here, however, the cluster analyses did not provide any information beyond that from the analysis of interindividual change: clusters for all composites (except Retention Propensity) were defined primarily by level (i.e., mean differences). Three clusters were found for propensity: (1) a cluster defined by consistent and high levels of retention propensity, (2) a cluster that was initially moderate to high on propensity and dropped off sharply in the last couple years, and (3) a cluster that started moderately low on propensity and increased during the last couple years.

Event history analysis was used to address officer retention during the first 4 years of service. Four event history models were examined, each adding a new set of predictors. Model 1 was a baseline model to examine the effect of time; model 2 added standard demographic variables, including tenure; model 3 added the all LROC composites except Retention Propensity, which, once included, yielded model 4. Four significant predictors of officer retention were identified. The first and strongest predictor, as expected, was the composite Retention Propensity. The second and third predictors were the composites labelled Characteristics of the Job (a comparison between military and civilian jobs on such conditions as pay and retirement benefits) and Civilian Market Ease of Entry (the perceived ease with which an officer could transition into the civilian job market). High scores on the composites indicated better characteristics in civilian jobs, perceived easy entry, and (for both composites) increased separation rates. The final significant predictor was the demographic variable of ROTC non-scholarship status. Despite higher levels of retention propensity, these officers were more likely to leave than either the ROTC scholarship or USMA commissions, a finding that is likely confounded with service obligation.

Recommend Design Changes for the Future LROC. A major part of this study involved evaluating the LROC survey design, administration procedures, and data management, and making recommendations on how to adjust them for an operational environment. Recommendations were also to be made on how to address the issues identified during the interviews with the representatives from the personnel and leadership communities. Key recommendations included (a) eliminating the economic sections of the survey where the data are collected by other surveys or where officers were asked to estimate spousal data or attitudes, (b) sending out the periodic survey as often as funding permitted (annually, if possible), (c) integrating the survey effort more closely with other surveys or data collection programs, (d) designing the survey to include both longitudinal and "special topics" components, and (e) disseminating results in brief, focused, user-friendly reports.

Utilization:

This report will (a) serve as partial feedback to the interviewees who provided input to this study and to their organizations, and (b) serve as the basis for changes to LROC procedures and design as it becomes an operational survey under the Army Personnel Survey Office.

MONITORING THE ATTITUDES AND PERCEPTIONS OF JUNIOR OFFICERS: THE
LONGITUDINAL RESEARCH ON OFFICER CAREERS (LROC) SURVEY

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MONITORING THE ATTITUDES AND PERCEPTIONS OF JUNIOR OFFICERS: THE LONGITUDINAL RESEARCH ON OFFICER CAREERS (LROC) SURVEY

Introduction

The U.S. Army Research Institute (ARI) took a large step towards increasing research on officers by administering the Longitudinal Research on Officer Careers (LROC) survey. The survey is an outgrowth of two projects initiated by the United States Military Academy (USMA) at a time when the officer corps was changing. The first, termed Project Athena, examined the impact of the decision to enroll women into the USMA. Project Athena began in 1976, the first year women were admitted; the project ended when this class graduated in 1980. The second, termed Project Proteus, monitored the career development of the 1980 USMA class, the goal being "to identify the process of career commitment among USMA graduates and to identify shortcomings in the precommissioning training of these officers" (Connelly, Dunn, Phillips, Schwartz, & Harris, 1993, p. 1).

The LROC survey is designed to assess the attitudes and perceptions of junior officers over time. By monitoring changes in officers' attitudes and perceptions, the LROC provides a prime vehicle for better understanding the impact of policy changes and other external influences on the satisfaction and career intentions/decisions of the Army officer corps.

The LROC was administered by mail in 1988, 1989, 1990, and 1992 to a stratified random sample (strata were defined by year of commissioning, source of commissioning, and gender) of officers commissioned from 1980 onward. The latter three surveys were administered to 1,000 newly commissioned officers and to all officers who had received a survey previously. Approximately 10,000 officers were surveyed each year (Harris, Wochinger, Schwartz, & Parham, 1993).

Information on officer perceptions and attitudes meets both theoretical and practical needs. From a theoretical perspective, the literatures of retention propensity, retention, and (to a lesser extent) job performance all indicate the predictive importance of such variables as satisfaction, organizational identification, and career intentions. These relationships can be used to build predictive models of retention propensity (Teplitzky, 1991), retention behavior (Byrnes & Hoover, 1995), and job performance. From a practical perspective, numerous members of the personnel and leader development communities can use information on officer perceptions and attitudes to monitor satisfaction with branch assignment or compare trends across year groups (i.e., officer cohorts). These models and data have direct impact on Army officer policy.

Given the potential of the LROC survey to inform Army policy, the purpose of the current study was to assist in transitioning the LROC survey project from a research to an operations environment by (a) assessing the needs of those working in the relevant personnel and leadership

operational areas, (b) showing how analyses of existing LROC data might address those needs, and (c) recommending how the LROC might best be designed and used as an operational tool. The project comprised five tasks, of which the first was the development of a management plan. The four subsequent primary tasks were the following:

- ▶ Task 2: Conduct Sample Analyses. During this task, the master LROC database—an amalgamation of the LROC database and the Officer Longitudinal Research Data Base (OLRDB)—was prepared. The primary goal, however, was to demonstrate the types of analyses supported by the current LROC database. Toward this end, Byrnes and Hoover (1995) developed structural equation models of retention propensity and retention behavior.
- ▶ Task 3: Determine Key Issues. This task involved identifying the short- and long-term issues that were of primary concern to members of the personnel and leader development communities. The Task 2 model was presented as an example of the utility of the LROC database. Reactions concerning this mode of presentation were obtained. Interviewee responses were summarized through content analysis.
- ▶ Task 4: Analyze LROC Data. The primary goal of Task 4 was to address a key issue raised during the Task 3 interviews. The issue chosen—identifying predictors of officer retention—was analyzed through event history analysis. A second goal of Task 4 was to demonstrate further the types of analyses supported by the LROC database. Analyses included a factor analysis, a cluster analysis, and the modeling of interindividual change.
- ▶ Task 5: Recommend Design Changes for the Future LROC. The goal of Task 5 was to assist transitioning the LROC from a research to an operational environment. Recommendations concerned changes to the survey, data collection procedures, and manpower requirements, and were based upon examination of past surveys and their data, information from Task 3, lessons learned from Tasks 2 and 4, and discussions with ARI personnel during in-process reviews for the study.

The results of Task 2 appear in Byrnes and Hoover (1995). The remainder of this report provides the results of Tasks 3 through 5.

Determine Key Issues

Method

To determine key short- and long-term topics appropriate for LROC, face-to-face interviews were conducted between February and April 1995 with senior level officers representing the Army personnel and leader development communities. Specific offices under the

Deputy Chief of Staff for Personnel (DCSPER), the Deputy Chief of Staff for Operations (DCSOPS), Total Army Personnel Command (PERSCOM), the Assistant Secretary of the Army, and the Center for Army Leadership (CAL) included¹

DCSPER

DAPE-MPO (Directorate of Military Personnel Management, Officers Division)
Sustainment & Development Branch
Accession & Distribution Branch
DAPE-MB (Directorate of Manpower)
Military Strength Programs Division
DAPE-HR (Directorate of Human Resources)
Leadership Division

DCSOPS

DAMO-TRZ (Training Directorate)
Leader Development

PERSCOM

TAPC-OP (Officer Personnel Management Directorate)
Officer Distribution Division
Functional Area Management & Development Division
Combat Arms Division
Combat Support Division
Combat Service Support Division

Assistant Secretary of the Army

Manpower and Reserve Affairs

Center for Army Leadership²

Leadership Development Division

Interviews were semi-structured and guided by a protocol containing interrelated topics. Interviews began by research staff introducing the background, purpose, and contents of the LROC. Next, interviewees were asked to provide a functional description of their respective

¹The individuals from these offices who participated in the interviews are listed in Appendix A.

²CAL officers participated in a conference-call phone interview.

offices so that the researchers could better offer examples and suggestions regarding relevant LROC content. Officers were queried about potential uses of LROC data. For example, officers were asked to what use they would put recurrent career/Army satisfaction measures. They were also asked about useful (user-friendly) format(s) for disseminating LROC results. A discussion of current "hot" officer topics also ensued. These topics included commissioning source performance differences, minority officer career progression, and the toll of the downsizing.

Knowledge of the LROC (beyond its existence) was spotty at best. In particular, PERSCOM representatives were unfamiliar with the instrument and had few spontaneous suggestions for topics that LROC analyses might address in the future. PERSCOM officers were not reluctant to be interviewed, but their perspective was that of a policy implementor rather than that of a policy maker. To promote discussion among such officers, interviewers raised potential topics on the basis of information obtained from previous interviews and analyses, as well as issues that were in keeping with the responsibilities of the office in question.

Results

A content analysis of the interviews revealed a number of themes that appeared with remarkable consistency across interviewees. The most prominent themes are discussed below.

Criteria for Success

As a result of the drawdown and the streamlining of the force, the typical officer career path has experienced both real and perceived changes. Virtually all respondents believed it would be useful and important to determine (a) whether officers (junior officers in particular) know the path(s) to success and (b) how officers evaluate their career prospects across time.

- ▶ What are the expectations of officers over time? There appears to be a feeling that officers entering the Army over the last few years have different career expectations than those who entered five to ten years ago. In particular, there is a concern that these officers no longer look at the Army as a viable long-term career option.
- ▶ Do junior officers believe that there is a zero-defect environment? There is growing concern that a number of officers with great promise are opting out of the Army because of the increasing number of requirements for a successful career and the perception that the current Army promotion track leaves no room for mistakes of any kind, especially at the command level. This concern was especially strong with regard to O-3s. Most interviewees believed that the current track to a successful Army career as an officer is very clear and much more demanding than it has been in the past. Others agreed that today's demands are relatively high but believed that career expectations and timetables were uncertain.

- What goals do officers strive for and according to what schedule? Appropriate goals might include reaching O-5 and/or reaching the 20-year mark (15, 20, and 30 were all mentioned as possible response options) in the Army. In addition to time and grade, expectations or goals regarding command opportunities and their importance for success as an Army officer were seen as a relevant area of inquiry.

Commitment

The drawdown was seen as having a potentially detrimental impact on commitment or loyalty to, and identification with, the Army. At issue were the effects of the incentive-induced departure of colleagues and superiors on commitment and morale. More broadly, there was a general interest in examining the longitudinal commitment pattern. That is, are officers initially attracted by the benefits and then "grow" to like the Army (a question that is especially relevant for ROTC scholarship commissions), or have they always wanted to be a soldier? Security (i.e., the perceived commitment to the officer on the part of the Army) was also seen as an important and evolving topic. In particular, this rhetorical question was posed: How do you encourage a difficult assignment (such as an overseas tour) and relocation of family when there is no assurance of a career?

Satisfaction (Incentives/Disincentives)

All of those interviewed agreed that it was important to tap officer satisfaction with such dimensions as military culture, quality of life, job/career opportunities and security, compensation, and the like. Repeatedly and forcefully mentioned was the need to research perceptions regarding and effects of the erosion of benefits (particularly retirement benefits). Evaluative comparisons of compensation levels (in cash and kind) and benefits (health, retirement, commissary privileges) with civilian levels are needed. Satisfaction with benefits and compensation should not preclude analyses of satisfaction with branch/functional area match and satisfaction with leadership.

Promotion/Assignment Opportunities

Closely related to satisfaction with branch/functional area and success criteria are expectations regarding career opportunities. Officers' assessments of promotion and assignment (including command) opportunities are considered a prime target for the LROC. In particular, those from the personnel and leader development communities were interested in expectations regarding such opportunities, as well as in differences in satisfaction/commitment between officers who are promoted and those who are passed over for promotion. Another issue within this domain was confidence in the promotion and assignment process. This latter issue is particularly salient given the current revision of the appraisal process.

Retention Propensity and Behavior

Perhaps the key criterion measure associated with the LROC is retention—both expectations (i.e., propensity) and actual behavior. Retention has not been a problem among officers. Some officers, however, acknowledged that retention may be adversely affected in the future. Interviewees considered the LROC to be an important tool for uncovering which officers leave and which stay, and why. The ability to relate the above issues—success criteria, commitment, satisfaction, and career opportunities—to retention intentions and behavior is an invaluable resource. Retention modeling based on the LROC and perhaps additional outside data (e.g., economic conditions, sociodemographics) would be well received, especially models relating retention propensity to actual retention behavior. The key is for LROC to add to retention modeling efforts, beyond the results obtained without such perceptual and attitudinal data.

Performance Indicators

During the course of LROC interviews, the need for and availability of performance measures other than retention were discussed. There was no overriding concern for measuring the performance of officers, and thus the non-availability of Officer Evaluation Records (OER) for research purposes was not a serious drawback for LROC research. However, for some, additional performance indicators would be an attractive feature of LROC. Aside from the success criteria suggested above (e.g., achievement of grade O-5; company command), candidate measures might include self-ratings or rankings of officer skills and/or competencies. Among the uses of such alternative performance criteria would be analyses of the quality of officers who leave (data that would have been of great interest to the interviewees given the recent VSI/SSB programs). Also, the inclusion of such indicators would promote a developmental assessment of officer competencies and skills, which might be particularly useful for the Training Directorate within DCSOPS and the Human Resources Directorate within DCSPER.

Transition Expectations

The crosswalk between the military and civilian environments is of continual interest, especially in the wake of the drawdown. To better assess junior officers' perceptions of opportunities offered by and the desirability of working in the civilian sector, interviewees were interested in measuring perceptions of civilian opportunities, knowledge and plans regarding the civilian job market, preparedness for a civilian career, and adjustment expectations. The current LROC contains a number of items assessing these dimensions. Hence, this is one major potential contribution of LROC. Such analyses might be conducted by branch and other military background factors (e.g., type of assignment, undergraduate major). Note that this topic was not seen as a particularly vital issue among those interviewed (although it might well be for Army Career and Alumni Program representatives). Transition expectations are more of an individual than an Army concern.

Special Topics

Although career expectations and opportunities, organizational commitment, satisfaction, retention, and performance are viable research topics for all officers, many of those interviewed expressed interest in segmented analyses as well.

Minority issues. Most interviewees believed that analyses segmented by race and gender would be of value. In particular, given that women (and to a degree, racial minorities) are often "forced-branched" (i.e., placed into a branch in which they did not express an interest; this typically occurs so that women and minorities are distributed throughout the branches of the officer corps), branch satisfaction by gender and race would be a topic worthy of analysis. Similarly, gender and race breakouts regarding promotion/career expectations and opportunities are needed. Leadership/mentoring relationships were also mentioned as a pertinent minority issue. Finally, it would be of value to ascertain perceptions of both minority group members and majority group members regarding treatment (e.g., assignment, promotion) of women and minorities in the officer corps.

Family issues. Satisfaction with family services, and the conflict between the demands of military life and family life, fall within the "satisfaction" theme listed above. However, because of their importance, these issues warrant mention as a separate special analytic topic. The LROC does and should continue to devote questions to the effect of the military lifestyle on the officer's spouse and family. Knowledge of the impact of family factors (including the incidence of dual-service couples) on satisfaction, readiness, and retention may help the Army to be both a responsive and responsible employer.

O-3 focus. Many of those interviewed felt that special emphasis should be placed on Captains, for O-3 is a pivotal rank. It is at this point that an officer reaches a plateau with a relatively long time to go (8 or 9 years) before promotion. By concentrating on the expectations, anxieties, and tensions experienced by O-3s, the LROC may be mined for counseling purposes. This is a key grade for understanding the processes involved in officer commitment and retention.

Commissioning source issues. Of late there is renewed and increased attention being paid to the relative contributions of officers from various commissioning sources (USMA, ROTC-scholarship, ROTC-non-scholarship, OCS). The LROC may be in a unique position to quell controversy by providing data on the strengths of the various officer commissioning sources. As mentioned earlier, the capability of following officers from various commissioning sources through their careers provides the Army a means of obtaining key data on the officers' career development.

Operations other than war. Warfighting is but one activity that soldiers train for or engage in. It would be wise to use the LROC to monitor participation in, and the degree of satisfaction with, operations other than war. Perceptions regarding the contribution of these alternative

missions to a successful career could also be ascertained. Further, assessments as to whether such operations detract from training would be informative.

Not all interviewees were concerned with such special topics. For example, minority and family issues were particularly salient for the Assistant Secretary of the Army. PERSCOM, on the other hand, was not as vocal regarding the need for analyses of these special topics.

Longitudinal and Cross-Sectional Needs and Uses

Certainly an invaluable characteristic of LROC is its longitudinal design. CAL representatives were particularly vocal regarding the longitudinal benefits of the LROC. Among the investigations enabled by this design are developmental underpinnings of officers' expectations, commitment, satisfaction, and retention intentions and behavior. There is interest in comparing the "pre- and post-" attitudes (e.g., satisfaction/commitment) of officers who have been passed over for promotion. Knowing why people join the officer corps and why they remain is best gleaned by asking the same officers at different points in their careers. By tracking officers over time the Army can also gain insight into leadership development. Recent questions regarding the performance of officers from the various main commissioning sources may require a longitudinal database, particularly if one assumes that Academy/ROTC/OCS differences dissipate over time. Similarly, concerns regarding development and performance of minority and female officers are best addressed through longitudinal data.

Cross-sectional analyses of LROC are also of value. In particular, there was great interest in between- and within-cohort comparisons. For example, questions arose as to the relative career intentions of successive officer cohorts. A comparison of the background characteristics of stayers and leavers should also be considered for analysis. Cross-sectional cohort comparisons of such variables as satisfaction (with work, supervisors, peers, and so on) and retention propensity within race and gender would be helpful in ascertaining the degree to which minority officers are making career strides or assimilating over time.

LROC Dissemination – Topical Reports

There was unanimous agreement that user- or policy-friendly reporting of LROC findings is a key factor for its continued support. The LROC may have much to offer, but dissemination via lengthy technically sophisticated reports (that are often ignored by non-researchers) detracts from its message. Clearly, LROC technical documentation is vital. Aside from backup technical reports, short (e.g., 2-5 pages), attractively designed mini-reports that stress content rather than methodology would be an invaluable contribution to policy makers and disseminators alike. Key individuals from the personnel and leader development communities could be canvassed periodically regarding important or urgent topics. Candidate topical reports gleaned from the interviews conducted in connection with the current project included branch match and satisfaction, retention modeling, satisfaction/expectations of O-3s, commissioning source and commitment, mentoring and minority officers, or any of the other topics mentioned above. Such

feedback would be beneficial not only to personnel and training policy makers, but also to respondents and officers in general.

To be most effective, topical reports should be attractively designed documents with an LROC/ARI border. A banner headline might effectively convey the topic. A problem or issue statement or question would be followed by a brief description of the data source(s). A one-page analysis could be written in magazine style, followed by interpretive statements or policy suggestions. Quotes regarding the findings and their implications from sponsors should be included. Finally, a point of contact and additional references could be offered. Also, LROC could be mentioned as an ongoing effort with appreciation for past, present, and future participants. A sample topical report has been prepared and appears in Appendix B.

Summary

Despite the lack of familiarity with the LROC survey and potential and previous findings, the discussions held in connection with the present effort generated a great deal of interest and enthusiasm in future LROC administrations and dissemination of results. Though officer retention is not currently a problem, the effects of the drawdown, the concomitant erosion of benefits, and newfound uncertainties regarding career goals make retention an issue likely to require attention in the not-too-distant future. Not only can LROC be a source of information on retention and policy implications regarding retention, but this instrument also can be used to provide input into the officer career development process: What motivates officers? Do they know the path or paths to success? What are their expectations regarding achievement of success? How and when does commitment to the Army evolve? Who is likely to cut an Army career short and why? What are the particular experiences and perceptions of minority and female officers and others toward them? A revised (but ongoing) LROC can provide answers to these and other questions regarding Army officers.

Although certain issues regarding officers may not be compelling today (e.g., retention), the lack of an operational instrument such as LROC precludes the means of fully investigating such issues when they do become most pressing and policies are in need of alteration. An operational LROC with periodic review and retooling is an investment in better informed personnel policies in the future.

Analyze LROC Data

The goal of this part of the LROC project was to choose for analysis one or more of the topics raised during the interviews with the members of the personnel and leader development community. Perhaps the best analysis to perform for this task would have been a study of the retention behavior of officers up to promotion to grade O-4. Unfortunately, the LROC data are not sufficiently mature to allow a clear analysis of this issue. As an alternative, an event history model of junior officer separation behavior through the first four years of service was developed.

The model contains demographic and attitudinal variables as predictors of separation from the Army.

In addition to the analysis focusing on the topic raised during the interviews, a number of demonstration analyses were performed to illustrate the richness of the LROC database. These analyses included (a) factor analyses, (b) models of interindividual change, and (c) cluster analysis. The demonstration analyses will be presented first, followed by the event history analysis of officer separation.

Samples

The LROC analyses centered on three primary samples: (a) the total sample of 10,346 LROC respondents, (b) the longitudinal sample of 928 respondents who have LROC data over all four years of administration, and (c) the event history sample.

Total sample

The total LROC database contains 10,346 junior officers who responded to at least one LROC survey. One of these cases was deleted during data cleaning because the data record contained impossible values; thus, the total sample contains 10,345 respondents. The demographic characteristics of the total sample appear in Table 1.

Longitudinal sample

Most data in the LROC database are incomplete from a longitudinal perspective. Indeed, only 928 officers (9 percent) of the total sample responded to all four LROC surveys. Given that most officers did not complete the LROC survey administered during the year in which they were commissioned, only those officers commissioned prior to 1988 were available to respond to all four surveys. From this perspective, the longitudinal sample represents 12 percent of the maximum response rate. The majority of the LROC analyses drew upon this sample. The demographic characteristics of the longitudinal sample appear in Table 2.

Event history sample

The event history analysis conducted on officer separation behavior required LROC data during the time period examined. Rather than picking some arbitrary mid-career time period (e.g., the fifth to the eighth years of service) that is affected in an unknown manner by self-selection out of the Army (i.e., only those officers who stayed until their fifth year in the Army would be included), a sample more conducive to event history analysis was drawn. The event history sample comprises officers who (a) had commissioning dates of 1987-1991, (b) responded to the first LROC they could have taken, and (c) did not have two-year gaps in LROC data. The demographic characteristics of the event history sample appear in Table 3.

Table 1
Demographic Characteristics for the Total Sample

Variable	Value	Frequency	Percent
Year of Commissioning	< 1980	67	0.6
	1980	757	7.7
	1981	903	9.2
	1982	836	8.5
	1983	889	9.1
	1984	996	10.2
	1985	1,083	11.1
	1986	1,219	12.5
	1987	1,018	10.4
	1988	790	8.1
	1989	777	7.9
	1990	442	4.5
	> 1990	8	0.1
Gender	Female	2,883	28.0
	Male	7,431	72.0
Race	White	8,334	80.7
	Black	1,200	11.6
	Other	789	7.7
Source of Commissioning ^a	ROTC (Scholarship)	2,989	28.9
	ROTC (Non-Scholarship)	3,151	30.5
	United States Military Academy	3,087	29.9

Note: N = 10,345. The following cases had missing data: Year of Commissioning = 559; Gender = 31; Race = 22; Source of Commissioning = 7

^aA total of 73 officers having other sources of commission were deleted from this sample (Officer Candidate School = 388; Direct = 641; Other = 82).

Table 2
Demographic Characteristics for the Longitudinal Sample

Variable	Value	Frequency	Percent
Year of Commissioning	< 1980	9	1.0
	1980	136	14.7
	1981	149	16.1
	1982	139	15.0
	1983	131	14.1
	1984	112	12.1
	1985	79	8.5
	1986	86	9.3
	1987	86	9.3
	1988	1	0.1
Gender	Female	244	26.3
	Male	684	73.7
Race	White	775	83.5
	Black	87	9.4
	Other	66	7.1
Source of Commissioning ^a	ROTC (Scholarship)	282	30.4
	ROTC (Non-Scholarship)	344	37.1
	United States Military Academy	297	32.0

Note. N = 928.

^aA total of 5 officers having other sources of commission were deleted from this sample (Officer Candidate School = 2; Direct = 1; Other = 2).

Table 3
Demographic Characteristics for the Event History Sample

Variable	Value	Frequency	Percent
Year of Commissioning	1987	384	22.9
	1988	422	25.1
	1989	501	29.9
	1990	371	22.1
Gender	Female	459	27.4
	Male	1,219	72.6
Race	White	1,407	82.1
	Black	131	9.7
	Other	140	8.3
Source of Commissioning	ROTC (Scholarship)	621	37.0
	ROTC (Non-Scholarship)	413	24.6
	United States Military Academy	644	38.4

Note. $N = 1,678$

Weighted vs. Unweighted Data

Recall that the LROC survey was administered to a stratified random sample of Army officers, with source of commissioning, year of commissioning, and gender serving as strata. To obtain proper estimates of variances and associated statistics (e.g., standard errors, significance tests), such data should be weighted such that they are representative of the population from which they were drawn. The greater the distortion of sample variances from those in the population, the greater the design effect.

One way to index the magnitude of the design effect is to calculate what Kish (1965) called the UWE (Unequal Weighted Effects) index. The UWE provides an indication of the

amount of inflation in the variances that has occurred because of unequal weights being applied to the individual observations in the sample data. The index is a function of the sample weights and the size of the sample:

$$UWE = \frac{N \cdot \sum_{i=1}^N w_i^2}{\left(\sum_{i=1}^N w_i \right)^2}$$

where N is the total sample size and w is the sample weight for individual i . When there is no design effect, the sample observations are not weighted (i.e., all $w = 1$), and thus

$$\sum_{i=1}^N w_i^2 = \left(\sum_{i=1}^N w_i \right)^2 = N$$

whereby the UWE reduces to

$$UWE = \frac{N \cdot N}{N^2} = 1.00$$

Thus, there is no design effect (i.e., no variance inflation) when individuals are randomly sampled.

For the LROC survey, values of the UWE for the longitudinal sample across the four administrations range from 1.30 to 1.37, indicating increases in the observed variances of 30 to 37 percent over those that would be observed in a simple random sample. Although these values are not minute, they are relatively small in terms of a design effect and may be ignored for most purposes (Mike Wilson, personal communication, June, 1995). By comparison, the values of the UWE for the 1994 Youth Attitude Tracking Study (YATS) for males and females were 1.56 and 1.67, respectively. On the basis of these findings, the data were not weighted back to the population for the LROC analyses reported here.

In addition to the UWE index, there were other reasons for not weighting back to the population. For one, although most officers in the longitudinal sample had a weight for each year they appeared in the database, 41 officers were missing at least one weight and 207 other officers were missing all weights. Given the large reduction in the sample size by requiring data from all four administrations, any further reductions in sample size were frowned upon. Second, most of the analyses were to focus on the longitudinal sample, which is a self-selected sample, differing somewhat from the original population from which the sample weights were calculated. As such, the original sample weights would not be entirely accurate (although likely satisfactory) for the longitudinal sample. Third, even if new sample weights were calculated for the longitudinal sample, the presence of four weights for each officer in the sample (one for each year of LROC administration) raises the question of which year's weights to use when constructing the

longitudinal sample covariance matrix. Although an average weight could have been calculated across the four years, the decision was made to ignore these complexities and to proceed with the analyses as if the LROC data represented a simple random sample.

Composite Development

The LROC does not contain predetermined scales for assessing officer attitudes or perceptions. Rather, the survey contains many items assessing satisfaction with and perceptions of dimensions of Army life and the civilian job market. The first step for the LROC analyses was to develop scales (or composites) from the survey items. Because of the interest in performing longitudinal analyses, all of the composites used in the LROC analyses comprise items appearing on all four versions of the LROC survey.

Most of the composites were developed using rational judgment. Research staff grouped items on the basis of the constructs they were judged to assess. Three of the composites (Civilian vs. Army Standard of Living, Characteristics of the Job, and Civilian Market Ease of Entry), however, were developed empirically. Specifically, a principal axis factor analysis of 23 items relating to perceptions of the civilian job market—20 items assessing Civilian Alternatives (Section IV.B., items 26-45³) and three items assessing difficulty of transitioning from the Army (Section III.E., items 81-83)—yielded four interpretable factors following varimax rotation. The results of this analysis for respondents to the 1992 LROC survey are given in Table 4.

The factor analysis resulted in a clean solution for most of the items (i.e., few items had large loadings on more than one factor). Loadings of each item on the factor of which it is an indicator are printed in boldface type. Loadings of items retained for consideration in the composites are printed in boldface type and are underlined.

Items retained for consideration in the composites were those with loadings greater than .40 on their parent factor and lower loadings on other factors. For example, "Overall quality of life" was not included in the composite Civilian vs. Army Standard of Living because its loading (.46) is nearly equivalent to its loading on the Family Matters factor (.45). Similarly, "Opportunities to advance in your field" was retained for the Characteristics of the Job factor, because (a) its nearly equivalent loading (.39 on factor 1) is less than .40, and (b) it was judged to be more a measure of the job than one's quality of life.

Scoring the Composites

For all composites but one (Retention Propensity), the composite score is the simple sum of the constituent items. This was feasible because most LROC items (excluding those assessing

³All section and item numbers are taken from the 1992 LROC survey.

Table 4
Rotated Factor Loadings for Principal Axis Factor Analysis of Civilian Job Items (1992 LROC)

Item	Civilian vs. Army Standard of Living	Characteristics of the Job	Family Matters	Civilian Market Ease of Entry
Total family income	.71	-.07	.23	.15
Overall standard of living	.67	.16	.30	.13
Pay	.65	-.13	.12	.20
Retirement benefits	.52	.18	-.03	.05
Benefits other than retirement	.48	.20	.01	.00
Overall quality of life	.46	.40	.45	.11
Assistance with civilian graduate education	.35	.19	.07	-.02
Quality of childcare/schools/facilities	.30	.22	.29	-.03
Feelings about organization mission/goals	.06	.73	.02	.09
Integrity/professionalism in organization	.03	.69	-.02	.08
Opportunities for job satisfaction	.17	.68	.22	.11
Quality of co-workers	.08	.65	.04	-.08
Opportunities to advance in your field	.39	.40	.20	.10
Job security	.16	.24	.10	-.01
Time for personal/family life	.06	.02	.79	-.00
Working hours/schedule	.02	-.06	.72	-.01
Personal freedom	.10	.19	.51	.07
Spouse overall satisfaction	.30	.23	.43	.04
Employment/education for spouse	.27	.02	.29	-.01
Length of maternity/paternity leave	.19	.04	.20	-.06
How difficult to leave Army in next year	.08	.15	.03	.76
Financial impact of 2-3 mo. unemployment	.03	.08	.03	.61
How difficult to find good civilian job	.10	.05	-.04	.59

Note. $N = 4,038$. Boldface type signifies the loading for the item on the factor with which it is associated. Underlined values represent the loadings for the items that constitute the resulting composite.

demographic information) are on a five-point scale.⁴ Note that this procedure does not give equal weight to all of the items; rather, each item is implicitly weighted by its variance. Hence, items with larger variances (and these may differ by year) have larger effects on the composite score.

For the Retention Propensity composite, however, a simple sum is inappropriate, because its two constituent items are not on the same scale. Rather, one item assessing civilian vs. Army career intentions (Section III.C, item 58, with item stem "Right now I am . . ." and response options ranging from "Planning on a civilian career" to "Planning on an Army career"; see Appendix C, which contains a copy of the 1992 LROC survey) is on a five-point scale, whereas the other assessing plans following completion of the officer's obligation (Section III.E, item 80, with item stem "Which of the following best describes your current career intentions?" and response options ranging from "I will definitely leave the Army upon completion of my obligation" to "I plan to stay in the Army beyond 20 years") is on a six-point scale. Instead of collapsing two of the categories on the latter item, each item was standardized relative to the sample of interest. The standard scores were then summed. Because standardizing equates the variances across items, the two items constituting the Retention Propensity composite are given equal weight.

Internal Consistency Reliability

Internal consistency reliability values—specifically, Cronbach's (1951) alpha—were used to evaluate all composites. Reliability values were computed for the composites using both the total sample and the longitudinal sample. Values across the two samples were very similar. Items reducing the internal consistency reliability of the composite were removed unless they were judged to assess the construct in question very directly.

Several composites were not included in the analyses because their internal consistency reliability values were too low (i.e., below $\alpha = .70$). In most instances, the low values were obtained because the scale comprised only two or three items. Additional items assessing the construct of interest would increase the reliabilities.

In all, 10 composites were developed for use in the LROC analyses. Short descriptions of each of the composites follow, along with their constituent items. Following the composite descriptions is a table of descriptive statistics and alpha reliability values (Table 5). Because the majority of the Task 4 analyses involved the longitudinal sample, Table 5 contains values for the longitudinal sample. Descriptive statistics of the composites for the other two samples are given in Appendix D; alpha reliabilities are given there for the total sample only.

⁴For the items evaluating civilian alternatives (Section IV.B., items 26-45), a sixth option of "Don't know" was offered to respondents. In constructing the three empirical civilian job market composites (Civilian vs. Army Standard of Living, Civilian Market Ease of Entry, Characteristics of the Job), "Don't know" was considered to be equivalent to "About the Same," because the respondent failed to indicate an advantage to the civilian or Army job in either case.

Satisfaction with Supervision. This composite, comprising five items, provides information on junior officers' evaluations of their current supervisors'

- ▶ Overall leadership effectiveness (Section II.A, item 1)
- ▶ Recognizing/rewarding subordinates (II.A, 2)
- ▶ Technical competence (II.A, 3)

(response options range from "Very good" to "Very poor"), as well as satisfaction with

- ▶ Relationships with superior officers (II.C, 21; "Extremely satisfied" to "Extremely dissatisfied")
- ▶ Opportunity for informal contacts with superiors (III.A, 26; "Very satisfied" to "Very dissatisfied").

Scores on the items were reflected, so that a high score represents high levels of satisfaction.

Satisfaction with Peers. This composite, comprising two items, provides information on junior officers' satisfaction with the following:

- ▶ Relationships with peers (II.C, 22; "Extremely satisfied" to "Extremely dissatisfied")
- ▶ Social relations with peers (III.A, 29; "Very satisfied" to "Very dissatisfied").

Scores on the items were reflected, so that a high score represents high levels of satisfaction.

Satisfaction with Promotions. This composite comprises eight items. Two of the items assess perceptions of career opportunities:

- ▶ How good are the opportunities for advancement in your branch for someone who has had the types of assignments you have had? (III.A, 10)
- ▶ How good are the opportunities for command in your branch? (III.A, 11)

(response options range from "Excellent" to "Very limited"). One item assesses satisfaction with

- ▶ The kinds of assignments you have had (III.A, 24; "Very satisfied" to "Very dissatisfied")

and the other five ask the officer to state his or her level of agreement with the following:

- ▶ I am confident I will be promoted as high as my ability and interest warrant if I stay in the Army (III.A, 15)
- ▶ I am confident I will get the kinds of assignments I need to be competitive for promotions (III.A, 17)

- ▶ The officer evaluation/selection system is effective in promoting the best officers (III.A, 19)
- ▶ The officer evaluation/selection system rewards officers for integrity and professionalism (III.A, 20)
- ▶ I can get ahead in the Army doing the kinds of work I like best (III.D, 78)

(response options range from "Strongly agree" to "Strongly disagree"). Scores on the items were reflected, so that a high score represents high levels of satisfaction.

Satisfaction with the Work Itself. This composite, comprising three items, assesses junior officers' satisfaction with the opportunities offered by their jobs. Specifically, the items request evaluations of the following:

- ▶ Opportunity to learn/develop skills relevant to your career (II.A, 4)
- ▶ Opportunity to do work that interests you (II.A, 5)
- ▶ Opportunity to exercise initiative/put your ideas into action (II.A, 6)

(response options range from "Very good" to "Very poor"). Scores on the items were reflected, so that a high score represents high levels of satisfaction.

Tolerance of Military Demands. This composite, comprising seven items, demonstrates junior officers' acceptance of the rigors of Army life. Respondents indicate their feelings about how reluctant/willing they are to accept the following conditions/requirements of Army life:

- ▶ The number of weeks per year you would typically spend away from home (V, 6)
- ▶ The number of unaccompanied tours you would probably have over the course of a career (V, 7)
- ▶ The amount of flexibility you would have to adjust your schedule or take time off for personal or family reasons (V, 8)
- ▶ The amount of control you would have over the timing of trips/assignments that would take you away from home (V, 9)
- ▶ The frequency with which personal or family plans would be disrupted by job demands/Army requirements (V, 10)
- ▶ The average length of time you would stay in one location before a PCS (V, 11)
- ▶ The number of PCS moves over the course of your career (V, 12)

(response options range from "Very reluctant to accept" to "Very willing to accept").

Civilian vs. Army Standard of Living. This composite is the first of the three composites derived empirically from the factor analysis reported earlier. High scores indicate that the respondent believes that conditions would be better in civilian jobs than in Army jobs. The composite reflects an officer's evaluations of the following five conditions in the Army relative to a civilian job the officer would have a realistic chance of getting:

- ▶ Pay (IV.B, 26)
- ▶ Retirement benefits (IV.B, 27)
- ▶ Benefits other than retirement (IV.B, 28)
- ▶ Overall standard of living (IV.B, 30)
- ▶ Total family income (IV.B, 45)

(response options range from "Much better in the Army" to "Much better in civilian life;" a sixth option, "Don't know," was scored as "About the same," yielding a five-point scale—cf. note 4).

Civilian Market Ease of Entry. This composite, the second of the three empirically derived composites, assesses junior officers' perceptions of how easily they could make the transition from the Army to the civilian job market; a high score represents perceived easy entry into the civilian world. The composite comprises the following three items:

- ▶ How difficult do you think it would be for you to find a good civilian job right now, considering both your own qualifications and current labor market conditions? (III.E, 81)
- ▶ How difficult would it be for you to leave the Army in the next year or so, given your current personal or family situation? (III.E, 82)
- ▶ How difficult would it be for you financially to be unemployed for 2 or 3 months if you needed time to find a new job? (III.E, 83)

(response options range from "Very difficult" to "Very easy").

Characteristics of the Job. This composite, the third of the three empirically derived composites, assesses junior officers' perceptions of conditions in the military compared to the conditions in a reasonably attainable civilian job; a high score represents perceptions of better conditions in the civilian job(s). The composite reflects officers' evaluations of the following five items:

- ▶ Opportunities to advance in your chosen field (IV.B, 31)
- ▶ Opportunities for job satisfaction (IV.B, 32)
- ▶ Quality of co-workers (IV.B, 33)
- ▶ Your feelings about the organization mission/goals (IV.B, 34)
- ▶ Level of integrity/professionalism in organization (IV.B, 42)

(response options range from "Much better in the Army" to "Much better in civilian life;" a sixth option, "Don't know," was scored as "About the same," yielding a five-point scale—cf. note 4).

Organizational Identification. This composite, comprising seven items, assesses the degree to which the respondent feels pride in the Army, feels a part of the Army, and embraces its values. One item assesses how important the following is to the respondent's career decisions:

- ▶ Your feelings about the organization mission/goals (IV.A, 9; response options range from "Extremely important" to "Unimportant (not a factor at all)").

The other six items assess junior officers' degree of agreement with the following statements:

- ▶ One of the things I value most about the Army is the sense of community or camaraderie I feel (III.D, 61)
- ▶ I would rather be affiliated with the Army than any civilian organization I know (III.D, 63)
- ▶ Even if I had an offer of a bit more pay from a civilian organization, I would be reluctant to leave the Army (III.D, 67)
- ▶ I would discourage a close friend from joining the Army (III.D, 69)
- ▶ I am quite proud to tell people that I am in the Army (III.D, 74)
- ▶ I feel I am really a part of the Army organization (III.D, 76)

(response options range from "Strongly agree" to "Strongly disagree"). Scores on all items (except III.D, 69) were reflected, so that a high score represents high levels of identification.

Retention Propensity. This composite, comprising two items, often serves as a dependent variable to be predicted by the other composites described above. It can also serve as a predictor of actual retention behavior. The items, given earlier when describing the scoring of this composite, are repeated here:

- ▶ Which of the following best describes your current career intentions? (III.E, 80; response options range from "I will definitely leave the Army upon completion of my obligation" to "I plan to stay in the Army beyond 20 years")
- ▶ Right now I am . . . (III.C, 58; response options range from "Planning on a civilian career" to "Planning on an Army career").

Models of Interindividual Change

The LROC composites characterize junior officers' attitudes and perceptions of Army life and career opportunities. Most officers in the longitudinal sample have four scores on each composite. Each officer's responses over time can be characterized by a plot of the composite scores (y-axis) against time (x-axis). These profiles, or *growth trajectories* (Bryk & Raudenbush, 1987; Willett & Sayer, 1994), provide information about the changes in the attitudes or perceptions of the officer over time. Four sample officer profiles indexing Satisfaction with Promotions are given in Figure 1.

Table 5
Descriptive Statistics for the 10 LROC Composites (Longitudinal Sample)

Composite	# items	N	α	Year			
				1988	1989	1990	1992
Satisfaction with Supervision	5	914-918	.76-.82	19.4 (3.4)	18.9 (3.6)	18.7 (3.7)	18.9 (3.7)
Satisfaction with Peers	2	921-926	.73-.77	3.94 (1.23)	4.02 (1.29)	4.08 (1.26)	4.13 (1.25)
Satisfaction with Promotions	8	910-919	.80-.83	27.7 (5.3)	26.9 (5.4)	27.1 (5.5)	26.1 (5.7)
Satisfaction with the Work Itself	3	917-922	.82-.83	5.85 (2.68)	6.07 (2.74)	6.15 (2.65)	6.11 (2.72)
Tolerance of Military Demands	7	915-922	.76-.80	19.8 (4.5)	19.9 (4.6)	20.2 (4.6)	19.9 (4.6)
Civilian vs. Army Standard of Living	5	886-897	.73-.76	16.3 (3.6)	16.7 (3.5)	16.6 (3.6)	16.2 (3.7)
Civilian Market Ease of Entry	3	921-924	.72-.74	9.47 (2.82)	9.33 (2.75)	9.07 (2.76)	8.71 (2.80)
Characteristics of the Job	5	900-911	.76-.78	13.4 (3.5)	13.5 (3.4)	13.3 (3.4)	13.4 (3.4)
Organizational Identification	7	911-921	.75-.77	27.2 (4.0)	26.9 (4.1)	26.9 (4.1)	26.2 (4.1)
Retention Propensity	2	914-924	.86-.92	-.000 (1.88)	.012 (1.87)	.645 (1.54)	.273 (1.89)

Note. Values for the sample size (N) and the internal consistency reliabilities (α) reflect ranges across the four years of administration. Mean values are given by year, with associated standard deviations in parentheses.

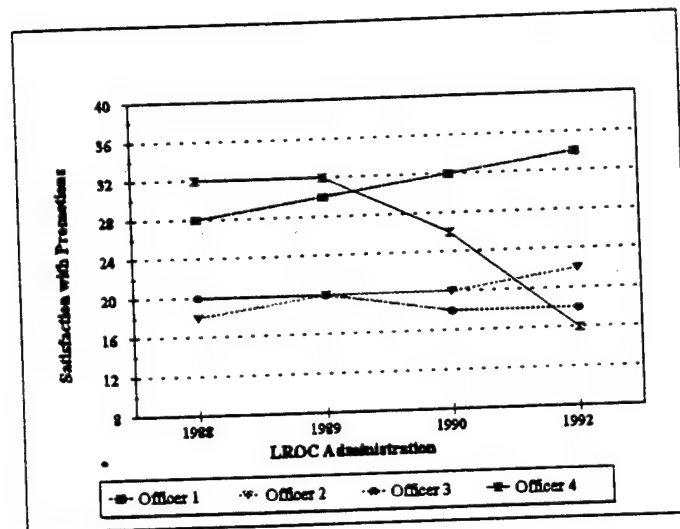


Figure 1. Sample growth trajectories for Satisfaction with Promotions

The growth trajectories could be fitted by a straight line using ordinary least squares regression (OLS).⁵ Each line would be defined by two parameters: the intercept and the slope. The purpose of analyses involving interindividual change is to determine whether there is significant variation in the growth trajectories (more specifically, in the parameters of those trajectories) of junior officers. Should significant variation be found, then the task is to identify variables that might be associated with that variation. For example, if there is variation in the trajectories of retention propensity over time, the question becomes whether certain officer characteristics (e.g., race, source of commissioning) are associated with particular profiles: Do minority officers have higher initial propensity (i.e., larger intercept terms) than whites? Do USMA graduates demonstrate decreased propensity over time (i.e., significantly different—here, negative—slopes) relative to officers from other commissioning sources? Do officers assigned to staff positions evidence significantly lower retention propensity initially but significantly greater increases in propensity over time? Analyses of interindividual change allow the researcher to answer questions such as these.

LROC profiles based on the observed composite scores, however, do not provide the required information. The total variance in the observed composite scores is a function of true-score variance and error variance:

$$\sigma^2_{\text{Total}} = \sigma^2_{\text{True}} + \sigma^2_{\text{Error}}$$

⁵Although linear models of growth are usually reasonable approximations, any function form of the growth trajectory is permissible. Quadratic growth trajectories might provide a better fit to the data than the linear functional form.

As such, the observed scores are plagued by measurement error. Measurement error can obscure the true growth trajectory for a respondent. The question of interest is whether officers' true growth trajectories vary significantly. To answer this question, one requires a method that can remove the error variance from the total variance in the composite scores, permitting modeling of the parameters defining the trajectory of true scores (i.e., the true growth trajectory). The LISREL (Linear Structural RELations; Jöreskog & Sörbom, 1993) software package allows modeling of the variation in true growth trajectories.

The analysis requires two steps. First, one must fit a model to the growth trajectories themselves, assessing whether there is significant variation in the parameters describing the trajectories. If significant variation is found (i.e., there is heterogeneity in the true growth trajectories), then the second step involves determining whether the variation is related to specified characteristics of the individuals. The analysis can therefore target individual characteristics (e.g., demographics, types of assignments) that are related to particular patterns of scores over time.

The analysis also requires time-structured data. That is, although the data do not need to be collected at equal intervals, all individuals must be measured on the same group of unequally spaced occasions. Thus, the analyses are easily accommodated into the present LROC data collection design.

Analyses were conducted for all 10 composites. The longitudinal sample served as the basis for these analyses. This sample was reduced from 928 to 731 officers because complete data on all composites and the independent variables were requested. By requiring complete data on all of the variables (i.e., listwise deletion of cases), the resulting covariance matrix that feeds the analysis is guaranteed to have desirable properties (specifically, it will be positive definite). Deleting only those cases missing data for a pair of variables (pairwise deletion) could yield a covariance matrix without these properties.

The independent variables used in these analyses were the following: (a) Race, defined by dummy variables for Blacks and Others (whites were the reference group); (b) Gender, defined by a dummy variable for males (females were the reference group); (c) Source of Commissioning, defined by dummy variables for ROTC-Scholarship and ROTC-Non-Scholarship (USMA graduates were the reference group); (d) Year of Commissioning, defined by dummy variables for 1979 and 1981 through 1987 (1980 was the reference group); and (e) Branch Choice, a five-point scale indicating whether the officer's basic branch was his or her first (5), second (4), third (3), fourth (2), or other (1) choice.

For illustration, a sample analysis of one of the composites is provided below. The analyses across composites were not identical (e.g., mean trajectories were typically increasing over time, although a few exhibited decreasing trends; a few trajectories were better approximated by quadratic growth trajectories than by linear trajectories), but most of the analyses exhibited

results similar to the analysis presented here. For detailed information on the specific mathematical underpinnings of this set of analyses, see Willett and Sayer (1994).

An Analysis of Interindividual Change in Perceived Civilian Market Ease of Entry

Specifying growth trajectories: Model 1 and its associated parameters. The composite assessing junior officers' perceptions regarding their ease of entry into the civilian job market was used to demonstrate the information provided by analyses of interindividual change. As described above, the first step in the analysis was to specify a functional form for the growth trajectories and to assess whether there was significant variation in the trajectories across individuals for the chosen composite. Specifically, various parameterizations of the means and errors of measurement across LROC administrations were tested using LISREL. Each parameterization yielded a model that tested (a) the fit of a particular functional form for the growth trajectory (here, a straight line), and (b) the plausibility of a hypothesized pattern of relationships among the error terms across time (i.e., combinations of uncorrelated errors, correlated errors, equivalent errors, and nonequivalent errors). Goodness-of-fit statistics were used to assess the suitability of the model for the data. Statistical tests of the variance components for the intercept and slope indicated whether there was significant variation in these parameters (and hence the trajectories) across officers. Only the four composite scores were used in this set of analyses; no predictor variables were included. The models evaluated during this step are summarized in Table 15.

Model 1 specifies a linear functional form for the growth trajectories and uncorrelated (i.e., independent) and equivalent (i.e., homoscedastic) measurement errors across the four administrations. This model is relatively inflexible because the error structure it specifies (a) constrains the error terms across administrations of the LROC survey to be equal, and (b) prohibits correlations between error terms from contiguous administrations. The latter assumption is especially stringent, because longitudinal data usually demonstrate such correlations (autocorrelated error). Nevertheless, the plausibility of parsimonious models (i.e., those with few estimated parameters) should be examined because, akin to Occam's Razor, such models are preferable to those entailing a large number of estimated parameters. The parameters for Model 1 will be used to describe the information provided in Table 6.

The first two parameters are the mean intercept and slope parameters, calculated across the entire sample. Thus, on average, junior officers' scores on Civilian Market Ease of Entry decrease by 0.26 each year. The data were centered so that the intercept would be the mean value of the dependent variable in 1989; hence, the mean score on the composite was 9.29 in 1989.

The next two parameters are estimates of the amount of variance across officers in the intercept and slope. Because both of these parameters are significant at $p < .001$, there is evidence that both the level of perceived ease of entry in 1989 and the rate of change in this value over time vary across officers.

Table 6
Parameters for the Models of Interindividual Change in Civilian Market Ease of Entry: No
Predictors

Parameter	Model 1	Model 2	Model 3	Model 4
$\mu_{\text{intercept}}$	9.29***	9.30***	9.28***	9.28***
μ_{slope}	-0.26***	-0.26***	-0.26***	-0.26***
$\sigma^2_{\text{intercept}}$	4.93***	4.91***	4.80***	4.83***
σ^2_{slope}	0.20***	0.11*	0.19***	0.19***
$\sigma_{\text{intercept, slope}}$	-0.06	0.01	-0.02	-0.05
$\sigma^2_{\epsilon 1}$	2.65***	3.33***	2.96***	2.76***
$\sigma^2_{\epsilon 2}$	2.65***	2.46***	2.79***	2.76***
$\sigma^2_{\epsilon 3}$	2.65***	2.39***	2.73***	2.76***
$\sigma^2_{\epsilon 4}$	2.65***	2.96***	2.57***	2.76***
$\sigma_{\epsilon 2 \epsilon 1}$			0.52**	0.53***
$\sigma_{\epsilon 3 \epsilon 2}$				
$\sigma_{\epsilon 4 \epsilon 3}$				
χ^2	24.14**	16.00**	5.86	7.23
df	8	5	4	7
RMSEA	0.053	0.055	0.025	0.007
SRMSR	0.027	0.041	0.011	0.013
GFI	0.99	0.99	1.00	1.00

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

The fifth parameter provides the covariance between the values of the intercept (i.e., the level of perceived ease of entry) and the slope (i.e., the rate of change over time). Dividing this value by the square roots of the variances given in the first two lines yields the correlation between level and rate of change for Civilian Market Ease of Entry ($r = -0.06$, ns). This indicates that there is no significant relationship between one's perceived ease of entry in 1989 and one's rate of change over the four administrations of the LROC survey.

The next four parameters give the values of the error variance in each administration of the composite. Again, these error terms were constrained to be equal for Model 1. These error variances, when combined with the variances of the composite across the four years, can be used to estimate the within-year reliability of the LROC composite. The variances for the Ease of Entry composite in 1988 to 1992 are 7.88, 7.72, 7.71, and 7.96, respectively. Substituting these values into the formula for reliability ($\sigma^2_{\text{true}} / \sigma^2_{\text{total}}$) yields values of .66 for the first three administrations and .67 for the 1992 survey. Hence, approximately two-thirds of the variance in the composite over time is the result of true variation in respondents' status on the composite.

A second reliability index can be calculated using equation 5 from Willett (1989). Specifically, one can use this equation to derive the reliability with which the rate of true change has been measured. For this example, the reliability is .27, a somewhat low value.⁶ This value is a function of (a) the variance in the slopes across individuals (σ^2_{slope}), (b) the magnitude of the error variance for the measurement occasion (σ^2_{ϵ}), and (c) the distribution of the occasions of measurement. The first factor is a function of the sample; the second factor is a function of the psychometric quality of the instrument; the last factor is under the control of the researcher, and has a significant effect on the reliability estimate. If the values of σ^2_{slope} and σ^2_{ϵ} were identical but there had been one more administration of the survey, the reliability would have increased to .43.

The last five rows provide fit statistics for the models. The chi-square (χ^2) value and its associated degrees of freedom can be used to assess the fit of a given model, although the χ^2 statistic depends substantially on the sample size. For this application, the χ^2 tests the discrepancy between the observed covariance matrix (the data matrix) and the covariance matrix implied by the model being tested (i.e., the covariance matrix expected to be observed if the model were accurate). If the discrepancy is small, then the model could have given rise to the observed data and is therefore plausible. In this instance, the χ^2 value would be non-significant. Hence, non-significant χ^2 values are desirable, which is why it is actually a "badness-of-fit" statistic—the χ^2 will be large and significant when the fit of the model to the data is poor. Thus, large sample sizes typically result in models that do not fit, because the power for detecting even small discrepancies is large. Degrees of freedom for the χ^2 test are calculated as the difference between the number of pieces of information provided by the observed data (here, the elements in the covariance matrix and four means) and the number of parameters being estimated. For Model 1, the χ^2 is significant ($p = .002$) at 8 degrees of freedom ($4 \times 5/2 = 10$ variances and covariances plus 4 means, minus 6 estimated parameters). Hence, the model is deemed not to fit the data.

The latter three rows are alternative fit indices. The first two of these, a point estimate of the root mean square error of approximation (RMSEA; Browne & Cudeck, 1993; Steiger, 1990; Steiger & Lind, 1980) and the standardized root mean square residual (SRMSR), provide better

⁶The reliability of measuring change over time is typically much lower than for the instrument used to assess the construct in question. For example, Willett and Sayer (1994) cited a reliability of .50 for measuring change in tolerance of deviant behavior, a value reported to be "higher than usually anticipated in the measurement of change" (p. 371).

information on the fit of the models. RMSEA is "a measure of the *discrepancy per degree of freedom* for the model" (Browne & Cudeck, 1993, p. 144). This measure has a lower bound of zero, indicating an exact fit. Unlike chi-square, the RMSEA can increase when additional model parameters are estimated. Hence, it has the potential to reward more parsimonious models. Browne and Cudeck suggested that a value less than or equal to 0.05 is indicative of a close-fitting model relative to the number of estimated parameters, and a value greater than 0.10 would suggest the model be discarded or amended. The value of .053 represents a borderline close-fitting model. The fit appears better using this index in part because the model is relatively parsimonious (only six parameters are estimated).

The SRMSR represents the average discrepancy (i.e., residual) between the fitted data matrix and the sample data matrix, standardized so that it is on a correlational metric. Here, the values in the correlation matrix that would be generated by Model 1 would differ from the values in the correlation matrix for the observed data by an average of .027.

Finally, the Goodness of Fit Index (GFI) is presented. Jöreskog and Sörbom (1986) stated that GFI is "a measure of the relative amount of variances and covariances jointly accounted for by the model" and that it "is independent of the sample size and relatively robust against departures from normality" (p. 1.41). This index typically ranges from zero to one, with a value of one representing perfect fit. Negative values are nonetheless possible. This value is printed because of its virtual omnipresence in the literature. The value of 0.99 is very high, indicating near perfect fit of the model. Nevertheless, more weight should be given to the other measures, which indicate poor fit (χ^2) or relatively good fit considering the small number of parameters estimated (RMSEA).

Alternative models. Parameter values from three other models also appear in Table 6. Model 2 is Model 1 with the error variances free to be any value (i.e., they are heteroscedastic). Model 3 allows the error terms from the 1989 and 1990 administrations to covary. This specification—also present in the unreported analyses for several other composites—was permitted in light of the empirical evidence. The other contiguous error terms were non-significant. Model 4 examined the possibility of retaining a well fitting model if the error terms were again constrained to be equal. (An alternative model that included a quadratic slope coefficient was estimated, but the variance of the quadratic term was not statistically significant. Thus, only linear functional forms were used in this analysis.)

These four models are *nested*; that is, the parameters within each model are subsets of one another. For example, Model 1 is nested within Model 2 because Model 1 is simply Model 2 with three fewer parameters (all four error variances are estimated in Model 2, only one is estimated in Model 1). The incremental increase in fit afforded by additional parameters can be assessed for nested models by evaluating the difference in their χ^2 values, which is asymptotically distributed as χ^2 with degrees of freedom equal to the difference in the number of parameters between the two models. Comparing Model 2 to Model 1, the difference in χ^2 values is 8.14 with 3 degrees of freedom ($\chi^2 = 24.14 - 16.00 = 8.14$; $df = 8 - 5 = 3$). The critical value for χ^2 at $p < .05$ is 7.81 and

at $p < .01$ is 11.34. Hence, the increase in fit is significant at $p < .05$, indicating that Model 2 provides better fit to the data than Model 1.

The most important comparison is between Models 4 and 3. As the error variances for Model 3 show, once the covariance between the 1989 and 1990 error terms is allowed, the error variances are relatively constant. Hence, Model 4 examined whether estimating each error variance separately was required (Model 3) or whether it would suffice to constrain the error terms to be equal. The value of the χ^2 difference test here is 1.37, which is non-significant and indicates that estimating the additional parameters (letting the error terms vary in magnitude across administration) did not significantly improve the fit of the model. Note also that Model 4 contains only one more estimated parameter than the stringently parameterized Model 1, yet provides significantly better fit to the data:

$$\chi^2_{\text{Model 1}} - \chi^2_{\text{Model 4}} = 24.14 - 7.23 = 16.91, df = 1, p < .001.$$

The low values of RMSEA and SRMSR further support the excellent fit of this model. Therefore, Model 4 served as the baseline model defining the growth trajectories in Civilian Market Ease of Entry in the next set of analyses.

Explaining parameter variation with individual characteristics: Model 5 and its associated parameters. In the second stage of the analyses, the independent variables listed above were entered into the analysis to determine whether they accounted for any of the observed variance in the intercepts and slopes. Three models were estimated. The parameter values for these models appear in Table 7.

Several parameters in Table 7 are new. Because the predictors are to help account for the variance in the individual growth trajectory parameters (i.e., the intercept and slope), there are now conditional variances ($\sigma^2_{\text{intercept} | X}$ and $\sigma^2_{\text{slope} | X}$) and a conditional covariance ($\sigma^2_{\text{intercept, slope} | X}$) in the table. The conditional variances index the variance remaining in the intercept and slope parameters after taking into account the predictors (X). The greater the explanatory power of the individual characteristics, the smaller the conditional variances will be, relative to their unconditional counterparts ($\sigma^2_{\text{intercept}}$ and σ^2_{slope}). The conditional covariance is simply the relationship between intercept and slope after partialling out the effects of the predictors. The next two parameters index the measurement error (constant across all LROC administrations) and the covariance between the 1989 and 1990 error terms. The next 12 parameters reflect the linear regression of the intercept and slope parameters on the predictors. Significant values represent statistically reliable relationships between the individual characteristics and the values of the intercept and/or slope parameters.

Model 5 has the same basic structure as Model 4 above, except that the first wave of predictors has been included: Gender, Race, and Branch Choice. Note first that the addition of the predictors has little effect on the estimated mean intercept, slope, or unconditional variances. The conditional variances demonstrate that the variance in the intercepts has been reduced

Table 7
Parameters for the Models of Interindividual Change in Civilian Market Ease of Entry: Predictors Included

Parameter	Model 5	Model 6	Model 7
$\mu_{\text{intercept}}$	9.28***	9.28***	9.28***
μ_{slope}	-0.26***	-0.26***	-0.26***
$\sigma^2_{\text{intercept}}$	4.83	4.83	4.83
σ^2_{slope}	0.19	0.19	0.19
$\sigma_{\text{intercept, slope}}$	-0.05	-0.05	-0.05
$\sigma^2_{\text{intercept} X}$	4.70***	4.27***	4.31***
$\sigma^2_{\text{slope} X}$	0.19***	0.17***	0.18***
$\sigma_{\text{intercept, slope} X}$	-0.06***	-0.04	-0.04
σ^2_{ϵ}	2.76***	2.76***	2.76***
$\sigma_{\epsilon 3 \epsilon 2}$	0.53***	0.52***	0.53***
$\gamma_{\text{Intercept Male}}$	-0.22		
$\gamma_{\text{Slope Male}}$	-0.03		
$\gamma_{\text{Intercept Black}}$	-0.96**		-0.63*
$\gamma_{\text{Slope Black}}$	0.03		0.02
$\gamma_{\text{Intercept Other}}$	-0.01		0.02
$\gamma_{\text{Slope Other}}$	0.04		0.04
$\gamma_{\text{Intercept Branch}}$	0.16*		0.07
$\gamma_{\text{Slope Branch}}$	0.01		0.01
$\gamma_{\text{Intercept ROTC-sch}}$		-0.75***	-0.68***
$\gamma_{\text{Slope ROTC-sch}}$		0.09	0.10
$\gamma_{\text{Intercept ROTC-non}}$		-1.58***	-1.53***
$\gamma_{\text{Slope ROTC-non}}$		0.05	0.05
χ^2	24.22	31.65	20.59
df	15	27	17
RMSEA	0.029	0.015	0.017
SRMSR	0.015	0.011	0.013
GFI	0.99	0.99	1.00

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

somewhat (2.7 percent), but the variance of the slope parameters remains unchanged within rounding (0.2 percent). Thus, this set of predictors does not account for much variance in the intercepts and essentially no variance in the slopes. Even so, two of the regression coefficients are significant: the dummy variable for blacks and the Branch Choice variable when predicting the intercepts. The coefficient for the dummy variable suggests that the mean score for blacks on Civilian Market Ease of Entry is almost a full point lower than of whites. The Branch Choice coefficient indicates that each point increase on the Branch Choice item translates into a 0.16 point increase in the Ease of Entry composite, a result that likely reflects the influence of Source of Commissioning: USMA graduates are more likely to (a) be assigned to their desired branch, and (b) have high scores on the Ease of Entry composite.

Alternative models. Model 6 includes the other predictors in the model: Year of Commissioning (to control for the fact that the growth trajectories for different year groups of officers represent different periods in their career) and Source of Commissioning. To save space, Table 7 does not include the values of the regression coefficients for the Year of Commissioning dummy variables. Most results are non-significant, and those that are significant are weak. To wit, 1982 commissions have significantly more negative slope coefficients than 1980 commissions, a result that could be due to chance. The latter three years of commissions (1985 through 1987) exhibit higher levels of perceived Ease of Entry, which is to be expected given the slight decrease in the mean value of the composite over time.

The most striking results of Model 6 come from the dummy variable for Source of Commissioning. ROTC scholarship officers score nearly three-quarters of a point lower on the Ease of Entry composite than USMA graduates. ROTC non-scholarship officers, by comparison, score nearly 1.6 points lower on the composite (nearly .60 standard deviation). Clearly, USMA graduates are much more confident of an easy transition into the civilian market should they choose to do so.

Model 7 contains the significant predictors from the above models: Race, Branch Choice, and Source of Commission. Interestingly, the effect of Branch Choice goes away when the effect of Source of Commission is partialled out. As suggested earlier, this likely occurs because USMA officers nearly always get assigned to their preferred branch, and they are quite certain of an easy transition to the civilian job market. The effects of race remain significant, but are reduced, perhaps indicating the smaller number of black officers who are USMA graduates.

Predicting change in Ease of Entry. As demonstrated by Willett and Sayer (1994), the Model 7 parameters from Table 7 (regression coefficients for the independent variables, estimated means of true intercept and slope) yield two equations: one predicting an individual's intercept and the other predicting an individual's slope. All that is required is their scores on the predictors. The equations derived from the above analyses are

$$\begin{aligned}\hat{\pi}_0 &= 9.28 + (-0.63)(Black - 0.09) + (-0.68)(ROTC_{sch} - 0.30) + (-1.53)(ROTC_{non-sch} - 0.37) \\ \hat{\pi}_1 &= -0.26 + (0.02)(Black - 0.09) + (0.10)(ROTC_{sch} - 0.30) + (0.05)(ROTC_{non-sch} - 0.37)\end{aligned}$$

where the π coefficients represent estimated intercepts and slopes, respectively, for each individual, depending upon his or her values on the predictors. Note, however, that in light of the small relationships between the predictors and the variance in slopes, the latter equation would provide very poor predictions.

Summary

Although significant variation in both growth trajectory parameters was observed for all of the composites studied during this task, in no instance were there significant relationships between the predictors and the variance in the slope parameter. Thus, the variation across officers in the slopes of their trajectories is either (a) systematic but unrelated to the chosen predictors in the present analyses, or (b) random variation that would not be predicted by any set of variables. Given the relatively low reliability of the assessment of change in these analyses, perhaps more stable relationships would be evidenced once more data points were available.

In spite of these relatively disappointing results, it is hoped that the present analyses have demonstrated the potential power and flexibility of this analytic method. Specifically, the analysis allows empirical investigation of the variation in officers' change in status on policy-relevant constructs, as well as investigation of the potential explanatory power of a wide variety of predictors. Although the predictors here were primarily demographic variables, more policy-relevant variables, such as branch choice or variables related to the types of assignments the officers have had, can also be used.

Surely, examining growth trajectories is far more powerful than examining change with only two data points. As the LROC database matures and the growth trajectories become better defined, the potential usefulness of this particular analysis will increase.

Cluster Analysis of Score Profiles

The composite score profiles that served as the basis of the growth trajectories in the previous analysis can themselves be analyzed. In particular, individuals can be grouped into homogeneous sets on the basis of their profiles. To the extent that profiles are meaningfully irregular (i.e., non-monotonic), this type of analysis might reveal distinct groups of officers that would be missed by the other procedure. Grouping can be accomplished using some form of cluster analysis. A k-means procedure (in which the researcher specifies the number of clusters desired) would likely be preferable to hierarchical agglomerative methods (in which the n individuals would be sorted into $n-1$ clusters, and then $n-2$ clusters, and so on until a single cluster of all n individuals was derived). The advantage of k-means procedures is that cases to be

clustered can change cluster membership during the procedure if a shift from one cluster to another reduces the heterogeneity of the clusters. Once a case has been joined with one or more other cases in hierarchical agglomerative procedures, the cases remain joined throughout the analysis.

To examine whether clusters of distinct profiles could be obtained, cluster analyses using the FASTCLUS procedure in SAS for Windows (version 6.08) were performed for each of the LROC composites. To ensure enough data points, the longitudinal sample was analyzed. The analyses were conducted within Year of Commissioning to control for the fact that the growth trajectories for different year groups of officers represent different periods in their career. Analyses involved only those officers commissioned from 1980 to 1984 to ensure maximal sample sizes. Three-cluster solutions were obtained for each of the five year groups.

In general, the results were disappointing, in that the analyses did not provide any information not already offered by the interindividual change analyses described previously. Specifically, clusters were distinguished almost solely in terms of level (i.e., mean differences), with profile shape and scatter being very similar across clusters. The one exception was the Retention Propensity composite. The cluster centroids for the clusters obtained for each year group are given in Table 8.

Three propensity clusters were common across the year groups. The first cluster, comprising the majority of the observations and observed for all five year groups, had a relatively flat and high propensity profile—officers who had high positive propensity during all four administrations of the LROC survey. The second largest cluster, appearing in year groups 1980 through 1982, was characterized by a profile that began with moderate to high but dropped off steadily throughout the administrations, ending with a very low propensity score. (For the 1983 and 1984 year groups, this cluster had the same basic shape, except that the first propensity was already quite negative, only to decrease further.) The third and smallest cluster was evident in year groups 1981, 1983, and 1984. The profile for this cluster began with a negative propensity score and increased to a moderate to high propensity score by the fourth survey administration.

Once such clusters are identified, their constituent officers could be examined in terms of independent variables, much as in the previous analysis of interindividual change. In particular, discriminant analysis could be used to develop discriminant functions that could be used to classify individuals into each of the groups. Although the small samples in the current database do not permit such analyses, their importance must be realized. Of particular interest would be discriminant functions containing independent variables of direct policy relevance (e.g., the timing or location of certain assignments; the time that schools were made available). Demographic variables are of interest in their own right, especially should they have predictive power. But whereas the Army cannot modify one's race or source of commission, policy makers could potentially change such variables as types or timing of assignments given to young officers in the interest of improving retention propensity. This type of analysis has great potential and should be considered in the future.

Table 8
Cluster Centroids for Retention Propensity Across Five Year Groups

Year Group	Cluster	N	Propensity 1988	Propensity 1989	Propensity 1990	Propensity 1992
1980	1	23	1.23	0.35	0.36	-2.96
	2	96	1.56	1.56	1.58	1.50
	3	10	0.40	-2.86	-2.95	-3.62
1981	1	104	1.69	1.46	1.60	1.45
	2	14	-0.94	-0.43	1.11	0.13
	3	23	0.17	0.01	-0.05	-3.40
1982	1	22	0.86	0.64	0.44	-2.82
	2	3	-3.48	-3.49	-3.43	-3.56
	3	101	1.35	1.24	1.32	1.42
1983	1	15	-0.99	-1.93	-2.42	-2.84
	2	25	-1.06	0.43	0.78	0.51
	3	86	1.50	1.19	1.19	1.05
1984	1	21	-0.76	-1.22	-1.38	-2.02
	2	52	1.54	1.53	1.26	1.10
	3	37	-0.25	-0.19	0.55	0.80

Officer Separation: An Event History Analysis

As discussed earlier in the section on the interviews regarding important issues over the short- and long-term, one question of great interest involved determination of the distinguishing characteristics of officers who remain in the Army as an O-3, despite the increased competition for optimal assignments and the long period of time before the next promotion. The current LROC database has not matured sufficiently to permit a thorough analysis of this issue. In its place, an analysis of officer separation behavior up through the fourth year of service was conducted using event history analysis.

Event history analysis provides a proper tool for analyzing event data. Researchers studying events must be aware that event data bring with them certain analytic difficulties not handled well by traditional analytic methods (Allison, 1984; Singer & Willett, 1991). Chief among these are (a) the presence of observations that do not experience the event during the observation period (i.e., censored observations), (b) variables for which an individual's values change over time (i.e., time-varying independent variables, such as marital status or scores on the

LROC composites), and (c) a non-normal distribution for the dependent variable (i.e., the event times). Other difficulties requiring special attention include the possibility of repeated events (e.g., absence-taking behavior) or competing events (e.g., accepting one job offer over another).

Event history analysis allows a researcher to model whether or not an event occurs, and if so, when it occurs. In many ways, event history models share much in common with traditional analytic strategies. For example, event history analyses generate both descriptive and inferential statistical information. Group differences in event occurrence can be tested, and statistical models relating independent variables to event occurrence can be developed. Nevertheless, the mathematics of event history analyses is more complex than the mathematics of correlational analytic methods. The basic elements of event history models are described below. Formal treatments of the mathematics of event history models appear in Kalbfleisch and Prentice (1980) and Lawless (1982).

Functions: The Building Blocks of Event History Models

Event history models involve functions, and the function values are evaluated across time. Time can be measured discretely (e.g., years or months) or continuously. The two primary functions used in event history analyses are the *survivor function* and the *hazard function*.

Survivor function. The survivor function, $S(t)$, describes the probability that an individual will survive at least until time t without experiencing the event in question. $S(t)$ is a monotonic, non-increasing (typically decreasing) function. In this respect, it is essentially a reverse cumulative distribution function, cumulating across time the proportion of observations that have yet to experience the event.

Hazard function. Because $S(t)$ is a monotonically non-increasing function, its shape remains relatively unchanged, regardless of the rate at which events occur over time. Thus, the survivor function might appear relatively uninformative, because not all events share the same pattern of occurrence. For example, the probability of dying increases with a function of time from about age 30 onward (Kalbfleisch & Prentice, 1980), whereas the probability of enlisted soldiers leaving the Army increases rapidly during the first three months of service and decreases to a relatively stable rate thereafter (McCloy & DiFazio, 1994). The function describing the distribution of event occurrence across time is $h(t)$, the hazard function. The definition of the hazard function depends upon whether time is measured in discrete units or continuously. The hazard function for discrete time will be described here (see McCloy and DiFazio for an application using a continuous time model).

For discrete time, $h(t)$ represents the probability an individual will experience an event during a particular time interval, given that the individual is at risk for experiencing the event. Hence, the hazard is a conditional density function. Calculation of the discrete-time hazard depends upon two quantities: (a) the number of individuals who experience the event during the interval, divided by (b) the number of individuals who are at risk for experiencing the event during

the interval, what Allison (1984) labelled the risk set. For single events, the risk set steadily decreases as individuals either experience the event or are censored.

The risk set and its use in the calculation of the discrete time hazard demonstrate how an event history model makes optimal use of data from censored observations. Assume that 500 officers appear in a sample at time $t = 0$ and that observations of separation are made biannually. At the first observation period of six months, 5 of the 500 officers will have separated. Hence, for the first six month period, the discrete time hazard is $5/500 = .01$. During the second time interval, 25 officers separate and 10 officers exit the study while remaining in the Army (i.e., they are censored observations). The risk set is now 495 rather than 500, because the five officers who separated during the first six months are no longer part of the sample. Hence, $h(t)$ for the second time interval is $25/495 = .05$. Note that the censored observations contribute to the risk set for interval two but are not considered events, because they did not leave the Army. For the third time interval, however, the risk set will be $(495 - 35) = 460$. Thus, the censored observations do not contribute to the risk set for the third interval. The data for censored observations are used correctly and optimally, contributing to the calculation of the hazard rate (via the risk set) for the amount of time the observations are in the study.

The Discrete-Time Model of Officer Separation

A special event history sample was created for this analysis, as mentioned earlier. To maximize the sample size, officers with internally missing LROC scores (e.g., data were present for the 1988 and 1990 surveys but not for the 1989 survey) were included in the analysis. The missing data were replaced by the mean of the two bracketing composite scores. This strategy was deemed defensible given the good fit of the linear functional form for the profiles observed in the analyses of interindividual change. Of course, officers with missing data that were not bracketed by composite scores from other surveys but who had not left the Army were treated as censored observations. Officers not having complete data following this imputation procedure were then deleted, leaving a sample of 1,678 observations, of whom 149 had imputed data.

One nice feature of the discrete-time survival model other than its ease of interpretation is that it can be estimated using more readily available logistic regression programs. All that is required is to turn the usual person-by-variable raw database into a person-period database, where the number of records is the number of independent observations over time of the individuals in the database (Singer & Willett, 1993). By including a set of dummy variables that index the observation period, the dichotomous event variable can be modeled easily.

The log of the hazard function serves as the dependent variable in event history models. Because the current discrete-time model is being estimated using logistic regression, the dependent variable is the logit hazard.

Event times. Most officers commissioned during an LROC administration year did not take the LROC survey during their first year of duty. Rather, most 1988 commissions took the

1989 LROC, most 1989 commissions took the 1990 LROC, and so on. This is why the event history sample contains 1987 commissions but does not contain 1992 commissions.

The lag between year of commission and year of LROC response has ramifications for the periods during which events are monitored. Specifically, officers commissioned during 1987 have four time periods during which an event could have occurred: (a) between the 1988 and 1989 LROC administrations, (b) between the 1989 and 1990 LROC administrations, (c) between the 1990 and 1992 LROC administrations, and (d) 12 months following the 1992 LROC administration. Officers commissioned in 1988 can maximally contribute the latter three time periods to the analysis, and so on. Thus, separations occurring during an officer's first year of service are not included in this model. Rather, the definition of the time periods results in some loss of officers who leave before they have served approximately 18 months.

A more optimal design for the analysis would ensure equal time intervals, additional time intervals, and LROC data obtained from the officers as near the point of commission as possible. Nevertheless, the current analysis is provided as an example of the information provided by event history models and as an attempt to address one of the key concerns raised during the interviews.

Predictor sets. Four distinct groups of variables were entered hierarchically as predictors of the logit hazard for separation from the Army, thus yielding four event history models. The first model, indexing the main effect of time, contained four dummy variables indexing the period of observation (a through d above). A dummy variable for each time period was used in the model, which is possible when a no-intercept model is requested from PROC LOGISTIC in SAS for Windows (version 6.08). The second model added a number of variables measuring basic demographic information: Gender, Race, Source of Commissioning, and Tenure.

The third model saw the addition of nine of the LROC composites. Only Retention Propensity was withheld, although it was added to create the final model. The propensity composite was not entered with the other composites in the third model because it is deemed to depend upon a number of the variables assessed by the other composites. In a causal model, the nine LROC composites would be used to predict Retention Propensity and then retention (e.g., Byrnes & Hoover, 1995). Hence, the variable could overshadow a number of the effects of the other LROC composites, because (in causal modeling terminology) much of their total effect on retention is likely indirect through Retention Propensity. If so, the partial regression coefficients (indexing direct effects) will be reduced once the propensity composite is included.

Results. The results for the first event history model are given in Table 9 (several decimals were retained to maximize precision of estimated hazard probabilities). The parameter values for the dummy variables indexing time in the first model allow re-creation of the baseline hazard function (i.e., the function specifying the hazard rate over time under the assumption that the sample is homogeneous—no covariates have yet been added to the model). Because the model has provided coefficients for estimating the logit hazard, the model under consideration is

$$\text{logit}(h_{it}) = [\alpha_1 D_{1it} + \alpha_2 D_{2it} + \alpha_3 D_{3it} + \alpha_4 D_{4it}]$$

where h_{it} is the hazard rate for person i in time period t , and the α parameters are the coefficients in Table 9 for the dummy indicators of time (D_{1it} through D_{4it}). Using these values, the hazard function can be obtained directly by substitution into

$$\hat{h}_t = \frac{e^{(\alpha_t D_t)}}{1 + e^{(\alpha_t D_t)}}$$

for the $t = \{1, 2, 3, 4\}$ time periods. This yields values of .03, .15, .16, and .14. Thus, the risk of leaving during the first time period is only 3 percent but increases to around 15 percent over the next three periods.

Table 9
Parameters for Event History Model 1 of Officer Retention

Variable	b	Std. Error	p value	Odds Ratio
D1	-3.3765	0.1410	.0001	0.034
D2	-1.7556	0.1042	.0001	0.173
D3	-1.6684	0.1457	.0001	0.189
D4	-1.8489	0.2609	.0001	0.157
-2 Log L	1478.02			

These data, in turn, can be used to provide an estimate of the survivor function for the entire sample by substituting the estimated hazard probabilities into the following equation:

$$\hat{S}_t = \prod_{i=1}^4 (1 - \hat{h}_i)$$

Thus, the estimated survivor probabilities are .97, .82, .69, and .60. Hence, only 60 percent of the officers entering from 1987 to 1991 are estimated to remain after four years of service. The estimated functions are plotted in Figure 2.

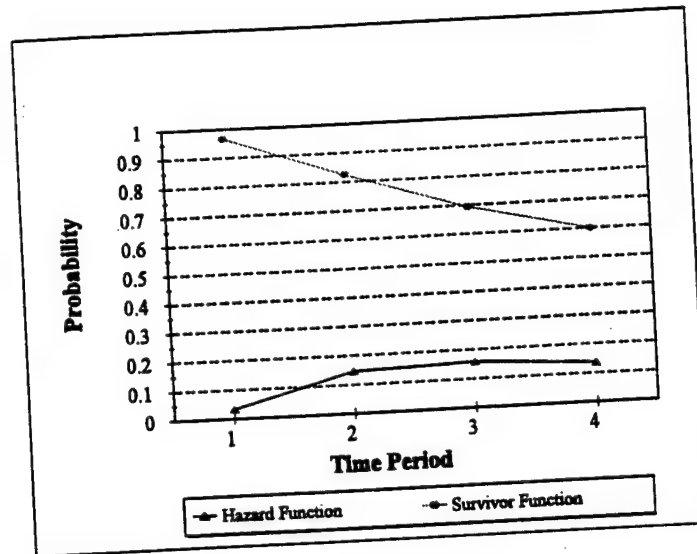


Figure 2. Baseline survivor and hazard functions for the event history model of junior officer retention.

The parameters for the second event history model are given in Table 10. Interpretation of these coefficients follows the same logic as the regression parameters for a traditional logistic regression analysis. Consider first the coefficient for the Male dummy variable. The negative value suggests that males have lower separation rates than females, and that the effect is statistically significant. The odds ratio is simply the exponentiated value of the regression coefficient, e^b , and its value of 0.608 signifies that the odds of separation are only 60.8 percent that of females. Equivalently, the odds ratio stipulates that the odds of separation for females is $1/0.608 = 1.64$ times greater than that of males.

The other variables entered into this model, however, do not contribute much predictive power. To test the incremental fit provided by the additional predictors, a log likelihood ratio test can be calculated. Specifically, the difference between the values of $-2 \text{ Log } L$ for the two models is asymptotically distributed as chi-square with degrees of freedom equal to the difference between the number of parameters in the two models. The difference between the $-2 \text{ Log } L$ values for models 1 and 2 is $1478.02 - 1465.08 = 12.94$ with $9 - 4 = 5$ degrees of freedom, a significant difference at $p < .05$.

The model parameters derived when the LROC composites are added to the prediction equation are given in Table 11. The addition of the LROC composites results in a significant increase in model fit ($1465.08 - 1277.58 = 187.50$ at $20 - 9 = 11$ degrees of freedom, $p < .001$). Two composites (Characteristics of the Job, Civilian Market Ease of Entry) show strong relationships to separation behavior, both centering on perceptions of the civilian world. Both coefficients are positive, indicating that higher scores on these composites are indicative of an

Table 10
Parameters for Event History Model 2 for Officer Retention

Variable	b	Std. Error	p value	Odds Ratio
D1	-3.3267	0.5046	.0001	0.036
D2	-1.8967	0.7928	.0167	0.150
D3	-1.9622	1.1046	.0757	0.141
D4	-2.3589	1.4667	.1078	0.095
Male	-0.4979	0.1514	.0010	0.608
Black	-0.2290	0.2878	.4263	0.795
Other	-0.3957	0.2929	.1766	0.673
Tenure	0.0152	0.0256	.5526	1.015
ROTC Scholar.	0.0463	0.1650	.7788	1.047
ROTC Non-Sch.	0.1735	0.1831	.3434	1.189
-2 Log L	1465.08			

Table 11
Parameters for Event History Model 3 of Officer Retention

Variable	b	Std. Error	p value	Odds Ratio
D1	-5.7365	1.3792	0.0001	0.003
D2	-4.4964	1.5135	0.0030	0.011
D3	-4.6760	1.7128	0.0063	0.009
D4	-5.1208	1.9849	0.0099	0.006
Male	-0.1170	0.1670	0.4835	0.890
Black	-0.1306	0.3041	0.6676	0.878
Other	-0.3407	0.3140	0.2779	0.711
Tenure	0.0378	0.0272	0.1641	1.039
ROTC Scholar.	0.0655	0.1823	0.7194	1.068
ROTC Non-Sch.	0.4972	0.2092	0.0174	1.644
BrchChce	-0.0673	0.0677	0.3203	0.935
Sat. w/ Supv.	0.0019	0.0225	0.9332	1.002
Sat. w/ Peers	-0.0293	0.0598	0.6241	0.971
Sat. w/ Promo.	-0.0227	0.0184	0.2162	0.978
Sat. w/ Work	0.0445	0.0320	0.1642	1.046
Tolerance	-0.0284	0.0176	0.1065	0.972
Std. of Living	0.0021	0.0248	0.9340	1.002
Ease of Entry	0.1358	0.0309	0.0001	1.145
Chars. of Job	0.1444	0.0277	0.0001	1.155
Org. Ident.	-0.0423	0.0243	0.0821	0.959
-2 Log L	1277.60			

increased risk of separation. The odds ratios indicate that a one-point increase on each scale increases the odds of separation by a factor of approximately 1.15.

The dummy variable indicating ROTC non-scholarship status becomes significant in this model. Again, the positive coefficient indicates an increased risk of separation for non-scholarship officers, with odds for separation being 1.64 times that of USMA graduates. This finding suggests the following. First, the non-significant parameter values for the dummy variables for source of commission in Model 2 (see Table 10) suggest there is little difference in separation rates for officers from different commissioning sources in the aggregate, but the rates of separation across these groups *for given levels of LROC data* (i.e., holding constant the scores on the LROC composites) vary markedly. That is, for a given score on, say, Civilian Market Ease of Entry, non-scholarship ROTC commissions are more likely to leave than either ROTC scholarship or USMA officers. Hence, a high score on the Ease of Entry composite is more indicative of a separation for a non-scholarship ROTC officer than for an officer from either of the other two commissioning sources.

Second, this finding suggests that although USMA graduates are quite confident of their entry into the civilian job market (recall the findings of the model of interindividual change in Civilian Market Ease of Entry), these perceptions do not strongly influence them to break obligation and separate within the first four years of service at a rate similar to ROTC non-scholarship officers. Note, however, that this supposition might not be justified, given that the model of change was estimated on a much smaller sample of officers who are more conscientious (after all, they responded to all four LROC surveys) and more experienced (only officers commissioned after 1986 are included in the current sample), and given that no one from any commissioning source had separated—otherwise, they would not have been in the longitudinal sample used in those analyses. At the same time, there is no guarantee that an increased separation for USMA graduates would not be found if the time periods examined during this analysis were extended another three or four years. After all, USMA officers might be of the opinion that they will leave the Army as soon as their six-year obligation has come to an end.

The observed differences in risk of separation across commissioning sources are certainly confounded by the obligated tours of ROTC scholarship and USMA officers. Nevertheless, the nonsignificant difference in the risk of separation across commissioning sources suggests that the LROC responses for officers from the various commissioning sources seem to mean different things. Unfortunately, the current data do not allow a definitive answer to what happens to separation rates of officers from various commissioning sources after the service obligations have been met, but it is raised here as an interesting research possibility for future analyses, especially in light of the reduction in military benefits resulting from the drawdown.

Finally, the parameters for Model 4 are provided in Table 12 to demonstrate the strong influence of the Retention Propensity composite. Even given the large effect of this variable, the three variables that were significant in Model 3 remain significant here. Further, the effect of

Table 12
Parameters for Event History Model 4 of Officer Retention

Variable	b	Std. Error	p value	Odds Ratio
D1	-8.1641	1.4484	0.0001	0.000
D2	-6.8307	1.5866	0.0001	0.001
D3	-6.8854	1.7883	0.0001	0.001
D4	-7.0180	2.0845	0.0008	0.001
Male	0.0319	0.1738	0.8544	1.032
Black	0.0134	0.3133	0.9660	1.013
Other	-0.2055	0.3265	0.5291	0.814
Tenure	0.0301	0.0287	0.2928	1.031
ROTC Scholar.	0.0963	0.1907	0.6137	1.101
ROTC Non-Sch.	0.7773	0.2230	0.0005	2.176
BrchChce	-0.0538	0.0719	0.3203	0.935
Sat. w/ Supv.	-0.0012	0.0231	0.9597	0.999
Sat. w/ Peers	-0.0000	0.0606	1.0000	1.000
Sat. w/ Promo.	-0.0017	0.0190	0.9287	0.998
Sat. w/ Work	0.0149	0.0333	0.6540	1.015
Tolerance	0.0186	0.0185	0.3126	1.019
Std. of Living	0.0021	0.0259	0.9342	1.002
Ease of Entry	0.0772	0.0330	0.0195	1.080
Chars. of Job	0.0649	0.0291	0.0259	1.067
Org. Ident.	0.0291	0.0257	0.2592	1.029
Ret. Propensity	-0.7222	0.0688	0.0001	0.486
-2 Log L	1146.98			

ROTC non-scholarship status increases, such that the odds for these officers leaving are 2.2 times greater than the odds for USMA graduates. This occurs because the Retention Propensity scores for ROTC non-scholarship officers are much higher than those for the officers from the other two sources of commissioning, yet the non-scholarship officers have a higher separation rate. Hence, when the effects of Retention Propensity are also held constant (along with scores on the other LROC composites), the risk of separation becomes even greater for ROTC non-scholarship officers (i.e., knowing that a USMA officer and a ROTC non-scholarship officer have the same retention propensity, the odds of the latter leaving the Army are more than double those of the USMA officer). Note, however, that the confounding of service obligation with commissioning source in the event history sample limits the conclusions that policy makers can confidently draw from these analyses.

Recommend Design Changes for the Future LROC

A major part of this study involved evaluating the LROC survey design, administration procedures, and data management, as well as making recommendations on how to adjust them for an operational environment. Recommendations were also made on how to address the issues identified during the interviews with the leaders in the personnel and leader development community. The evaluation targeted (a) the data to be collected; (b) data collection design; (c) estimated manpower requirements; and (d) prospective analytic approaches, their requirements, advantages, and limitations.

Data To Be Collected

The extant LROC survey is a strong and valuable instrument, particularly as a retention research tool. As shown in the previous section, numerous scales have high internal consistency reliability, thus speaking in part to their construct validity. Further, the survey taps a wide variety of perceptual and attitudinal variables (e.g., satisfaction with promotions, satisfaction with peers, tolerance of military demands, perceived ease of entry into the civilian labor market). In light of discussions with personnel and leader development experts, however, some modifications are in order.

Organizational Identification and Organizational Commitment

An evaluation of the items tapping commitment to the Army in terms of reliability and validity (construct and predictive) is advised, given the importance of this construct to policy makers concerned with junior officers. Defined as "the strength of an individual's identification with and involvement in a particular organization" (Porter, Steers, Mowday, & Boulian, 1974, p. 604), organizational commitment comprises the following components: "(a) a strong belief in and acceptance of the organization's goals and values, (b) a willingness to exert considerable effort on behalf of the organization, and (c) a definite desire to maintain membership in the organization" (p. 604).

As discussed by Teplitzky (1991), several researchers have questioned the utility of such a complex construct (e.g., DeCotiis & Summers, 1987; Graen & Ginsburgh, 1977; Mobley, Griffeth, Hand, & Maglino, 1979; Morrow, 1983; Reichers, 1985; Scholl, 1981), stressing the need to focus on the more specific components. Mobley et al., for example, suggested that a person could embrace the organization's goals and values yet have no desire to engage in effort on behalf of or maintain membership in the organization.

The current LROC contains items that seem to be better measures of organizational identification (the perception that one's values match the values of the organization) and organizational internalization (the acceptance and belief in the organization's goals and values) than of commitment to the organization. The fine distinctions between these constructs are not limited to academic interests or semantics.

For example, organizational commitment may be a better predictor of retention for USMA graduates than either organizational identification or measures of satisfaction with promotions, the job, etc. USMA graduates might very well fully embrace the goals and mission of the Army. Further, USMA graduate satisfaction is likely to be high: these officers are more likely to receive the better assignments and are considered by some to be the elite of the junior officer corps.

Endorsing the Army's goals and mission or getting the desired assignments, however, in no way ensures USMA officers' organizational commitment. Numerous civilians heartily endorse the goals and mission of the Army yet do not seek to be a uniformed member of that military service. Further, given the perceptions of USMA graduates about the ease with which they could obtain a civilian job (that will likely provide a larger pay check), these officers may be less willing to commit to the Army past their required tours of duty than junior officers from other commissioning sources. Although current data do not support this notion (Eitelberg, Laurence, & Brown, 1992), the continuing erosion of benefits triggered by the recent downsizing of the force could be the catalyst for increased separation of USMA officers to the civilian sector.

Following the advice of researchers such as Mobley et al. (1979), LROC items assessing the other components of organizational commitment (Porter et al., 1974) should be considered. The LROC contains some good items regarding career orientations (e.g., the item regarding Army career plans at different points in time), but whether a reliable commitment factor exists is questionable. More precise measures of intentions and plans should be considered.

Satisfaction

The LROC assesses officer satisfaction with a number of components of Army life (e.g., peers, supervisors, promotion, the work itself). Although the span of coverage is good, the density of items across scales varies considerably. For example, Satisfaction with Peers comprises only two items, whereas Satisfaction with Promotions comprises eight items. More desirable would be a roughly equivalent number of items assessing each construct. If it is important to measure officers' satisfaction with their peers, then surely more than two items should be used.

Further, it is unlikely that eight items are required to reliably assess officers' satisfaction with promotions.

Constructs/Items To Add or Delete

The LROC fails to delve into officers' satisfaction with their supervisors. In particular, the LROC would likely benefit from the addition and evaluation of items related to leadership competencies. The Leadership and Professionalism Assessment, which is being administered by the Center for Army Leadership under the direction of the Deputy Chief of Staff of Personnel, could be useful in this regard. Also, items assessing what junior officers expect from the Army would be useful to members of the personnel and leader development communities.

Of course, ARI must guard against the LROC becoming too long. If items are to be added to LROC (e.g., commitment, leadership competency), it will be necessary to cut back on some existing LROC items. A number of items could be cut from the survey. For example, the compensation (in cash and kind) items are important but inappropriate (or at least cumbersome) in their current form and thus may yield unreliable results. Also, family issues remain important, but the Army should consider the value of items that ask the respondent to answer for his/her spouse or fiancé(e).

Items should be changed or omitted, however, only if there is a compelling reason to do so. Item analyses of existing items seem an important step for the resurrection of the LROC. Nondiscriminating and otherwise poor items (such as some of the economic items) should not be carried over, particularly when arising issues vie for coverage.

It is also important to plan for linkages between the LROC and other survey efforts and databases. If a policy issue arises, it would behoove ARI to provide timely responses. Again, well defined topical reports and a bypass of the typical review process, or at least expedited publication, would enhance the usefulness of LROC.

Regardless of the items that are added to or deleted from the survey, the most important step for ARI to take regarding LROC is to identify, and commit to, the constructs that are considered vital to monitor as part of a longitudinal assessment. A core set of constructs, and items tapping those constructs, must be agreed upon for inclusion in all subsequent surveys. The longitudinal portion of the survey will be its heart and soul. Space for a block of items tapping topical issues or current events (as in the 1992 survey) would increase the flexibility and usefulness of the LROC.

Data Collection Designs

The current data collection design—a stratified random sample (strata defined by year of commissioning, source of commissioning, and gender) of newly commissioned officers, plus all previous LROC respondents—seems appropriate. The following recommendations center on (a)

the criticality of administering the LROC to officers beginning with their first year of service, (b) the frequency of LROC administration, and (c) the need to press onward with administration.

Administration During the First Year of Duty

In the best of all worlds, the LROC should be given to all newly commissioned officers. Assuming such wide-ranging administration to be financially impractical, the best course of action is to administer the LROC to as many newly commissioned officers as possible.

The LROC is designed to assess officer attitudes and perceptions; these variables can, in turn, be used to help understand officer career development (retention, in particular). As a result, measuring officer attitudes throughout the career is crucial. Indeed, although the LROC database contains records on over 10,000 officers, the majority of these data are useless for evaluating an officer's career development. The data are limited because they represent officers who did not receive the survey before they had served for two or more years in the Army (i.e., officers who were commissioned between 1979 and 1986). Thus, although most of the database comprises O-3s, relatively few questions about officers at this crucial career point can be answered definitively, because there are no data regarding their attitudes or perceptions during the initial stages of their careers. For the LROC to have maximal utility, officers must be assessed during their first year of service.

As the database grows and there are more officers to be surveyed (i.e., the longitudinal sample increases), the costs of administering LROC might be reduced if officers are surveyed only biennially after making a certain grade (e.g., O-4 or O-5). This solution might be feasible if the primary goal of the LROC is to monitor the attitudes and perceptions of junior officers. Of course, the critical step is to identify the purpose the LROC is to serve and to consider what issues ARI wants the LROC to be able to answer.

Frequency of Administration

The LROC was administered annually (almost) for four years. At several earlier meetings during this project, various project staff raised the possibility of a biennial administration. Although the cost savings are apparent, the strong recommendation of the research team is to continue annual administration. There are several reasons for failing to endorse biennial administration, among which are the following:

- ▶ The necessity of administering the LROC to officers during their first year of duty (for reasons outlined above)
- ▶ A doubling of the amount of time required for an adequate number of data points to be established for longitudinal analyses

- ▶ The replacement of cross-sectional year-group analyses—an area of vital interest to many members of the DCSPER community who study trends—by sparse biennial cohort analyses
- ▶ A decreased association between key events during an officer's career (e.g., leaving the Army; promotion to O-4) and the attitudes and perceptions of the officer prior to the event.

If annual administration proves impossible because of resource constraints, then the analyses described and demonstrated in the earlier sections of this report will remain viable but will be subject to the difficulties described in the latter three points above. Meaningful analyses will be possible, but more time will need to pass before they can be conducted (i.e., it will double the amount of time before a desired number of data points are available). One suggestion is to supplement the LROC with data from other surveys the Army does administer on an annual or semi-regular basis. Another admittedly more dire and less desirable option would be to eliminate other surveys and to commit to the LROC.

Continuous Administration

On a related note, the survey should be given each year, every year. If the LROC is to provide a longitudinal data base, then ARI must administer the survey every year, regardless of the circumstances. Policy decisions often require fast answers. Such a demanding climate does not afford breaks. By administering the LROC to each new cohort of officers (and to those who have responded previously), ARI will build a database that will be available to inform policy issues whenever they arise.

Continuous administration requires both perseverance and patience (and, obviously, funding). The perseverance represents a commitment by the Army to the cause of longitudinal attitude assessment. The interviews conducted during this project speaks loudly to the support in the personnel and leader development communities for this endeavor. The patience represents the willingness to administer the survey year after year even though certain dimensions it assesses are not currently in the policy spotlight. When the policy issues change and those variables do become one of the main issues, the LROC database will be able to provide ample data to inform the questions being asked because the watch was maintained.

Estimated Manpower Requirements

Needless to say, continuity is important in a longitudinal (or panel) study such as LROC. The commitment to a longitudinal assessment requires extensive resources. As mentioned earlier, as many officers as possible should be administered the survey. Follow-up administrations are especially important. Longitudinal data are greedy, and dropout will be a problem, especially given the large number of surveys that assail Army officers.

One recommendation to encourage participation on a yearly basis is to emphasize the role of the LROC in policy-making. In particular, the topical reports that are developed from the LROC should be sent not only to the members of the personnel and leader development communities, but also (and even more importantly) to all LROC respondents. It is quite possible that officers will pay special attention to the LROC survey if they are made aware that their input is having direct effects on the policy decisions that are occurring above them. This simple provision of feedback could be the most effective way of maintaining response rate for what might otherwise be viewed as "just another survey."

Increased response rates might also result from ensuring LROC administration during each officer's first year of duty. This would at least increase the chances of them becoming "used to" filling out the survey. Coupling yearly administration with the demonstration that the data are being used in important ways could have strong positive impacts on response rates.

Analyses

The LROC database supports numerous interesting analyses, both cross-sectional and longitudinal. As demonstrated earlier, these include factor analysis, structural equation modeling, assessment of interindividual change, cluster analysis, and event history analysis. Although analyses need not be complex to be informative, the LROC has been shown to support diverse analytic techniques that allow researchers to address a wide range of policy issues.

Note, however, that the current LROC database remains limited as a longitudinal database. The primary limitation was mentioned earlier: the large number of officers without LROC data at the beginning of their tours of duty. The data on officers commissioned before 1987⁷ are not useful for many career development questions, unless one has an interest in a specific time frame of an officer's career (say, from the fifth to the eighth years of service).

For example, the event history model of officer retention could only be estimated using data on officers commissioned from 1987 to 1991. For the current database, this sample precludes answering questions such as, "What distinguishes between (a) the O-3s who tough it out and stay through their eighth to eleventh years of service before reaching O-4, and (b) the O-3s who decide to leave the Army before reaching O-4?" This analysis needs to consider the officers who left prior to making O-3, as well as the current O-3s. Although we could have addressed this question, only variables available from the OLRDB could be used to predict O-3 attrition behavior. The current database simply does not support an analysis of this question using LROC data. Once the LROC becomes operational, however, such questions will be easily addressed after the data have matured sufficiently.

⁷Only 10 officers commissioned in 1988 completed the 1988 LROC; most 1988 commissions completed the 1989 LROC instead. This one-year lag between year of commission and LROC administration runs throughout the LROC database. Hence, the 1987 cohort contributes meaningfully to the LROC analyses, whereas the 1992 cohort does not.

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Appendix A: Officers Participating in Task 3 Interviews and the Offices They Represent

LROC Interview Schedule

Officer	Area	Date	Time	Room	Phone
COL Carlson, MAJ Mangamo LTC Frank	Sustainment & Development Br. Accessions & Distribution Br. (DAPE-MP)	February 24	0900	2B672	697-5360
COL Maloney	Officer Distribution Div. (TAPC)	February 27	0930	6S55	325-7890
COL Nelson, MAJ Henry, MAJ Detwiler, CPT Hersh	Military Strength Programs Division (DAPE-MB)	March 1	0900	2C744	693-2065, 697-2929
COL Leahy	Functional Area Management & Development Division (TAPC)	March 2	0900	7S33	325-0217
COL Buckles (and five others)	Combat Arms (TAPC)	March 2	1100	4N65	325-9698
GEN Wong	Officer Personnel Management Directorate (TAPC)	March 10	1000	7S21	325-8141
LTC Christiansen MAJ Wolfenden	Leadership Division (DAPE-HR) Leader Development (DAMO-TRZ)	March 3	0930	2B659	697-8990
COL Bryant, LTC Welch, LTC Speer, LTC Novosad	Combat Service Support Division (TAPC)	March 8	1330	6S19	325-5299
COL Haynes	Combat Support Arms Division (TAPC)	March 10*	1300	4N29	325-0627
Mr. Tom Wilson, MAJ Brayboy, LTC Lee, LTC Anderson	Asst. Secretary of the Army—Manpower and Reserve Affairs	March 28	1430	2E591	695-4394
LTC Zulick, LTC Buck, LTC Gilbert, LTC Koenig, MAJ Snodgrass	Center for Army Leadership	May 31	1000	Phone	(913)758- 3248

Note: DAPE-MPO (Directorate of Military Personnel Management, Officer Division); DAPE-MB (Directorate of Manpower); DAPE-HR (Directorate of Human Resources); DAMO-TRZ (Training Directorate); TAPC (Total Army Personnel Command)

Appendix B: Sample Topical Report

Army Officer Retention and Branch Assignment

Background: In addition to their identification with the Army as an overall institution, officers are affiliated with a particular branch (e.g., Infantry, Aviation, Signal Corps, Military Intelligence, Ordnance Corps). Several branches have been designated as special branches (e.g., the Judge Advocate General Corps and the Medical Corps).

Branch assignments are made early in an officer's career. Although branch preference is considered, not all officers are assigned to their desired branch. Promotion opportunities and retention vary across the branches. Of particular interest to members of the personnel and leadership development communities is the relationship between branch assignment and subsequent retention.

Issue: What is the relationship between branch assignment and retention? More specifically, does assigning officers to a non-selected branch lead to lower job satisfaction, lower retention propensity, and eventual separation from the Army?

This issue is of particular concern with regard to minority and female officers, because women and racial minorities are frequently "forced-branched" (i.e., placed into a branch in which they did not express an interest; this typically occurs so that women and minorities are distributed throughout the branches of the officer corps).

The recent downsizing of the force may result in an increased need to force-branch more officers overall as the Army has to do more with fewer personnel. Information is desired on the potential ramifications of this action on officer retention.

Source: Data from the Longitudinal Research on Officer Careers (LROC) survey were used to address the issue of the relationship between branch match and retention. The LROC survey was administered annually from 1988-1990 and in 1992. The survey assesses the attitudes and perceptions of junior officers over time. By monitoring changes in officers' attitudes and perceptions, the LROC provides a prime vehicle for better understanding the impact of policy changes and other external influences on the satisfaction and career intentions/decisions of the Army officer corps.

Information was provided by 928 junior officers, commissioned between 1980 and 1987, who responded to the LROC in each of the four years the survey was administered. The sample comprised 775 whites and 153 minorities; 684 were male, 244 female.

Findings: Total Group. Regarding branch assignment, just over 70 percent of Army officers received their first choice, and 82 percent received either their first or second choice (see Figure 1). In terms of separation, nearly 22 percent of the LROC respondents separated from the Army. Twenty-eight percent of the officers remaining in the Army

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did not receive their desired branch assignment, whereas 35 percent of the officers leaving the Army failed to receive their desired branch. Nearly 17 percent of the officers who remained in the Army received neither of their first two choices, whereas nearly 22 percent of those leaving the Army failed to receive their first or second choice. Thus, officers who were not assigned to their desired branch had a separation rate approximately 30 percent higher than the rate for officers assigned to their desired branch.

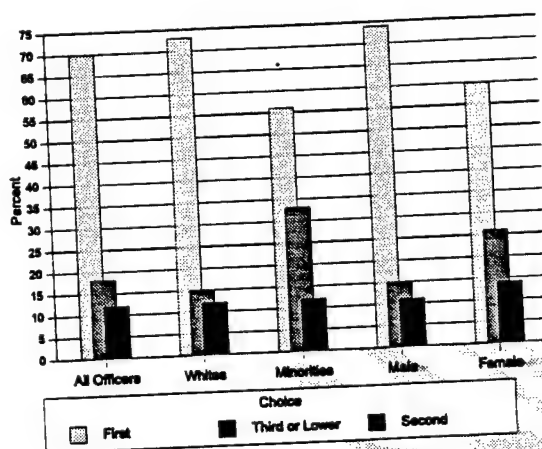


Figure 1. Distribution of Branch Choice Across Officers

Regarding satisfaction with promotions, officers who separated were significantly less satisfied than officers who stayed. Work satisfaction displayed the opposite pattern, with separating officers reporting significantly greater work satisfaction than staying officers (see Figure 2).

Comparing Branches. Officers in the following branches were least likely to obtain their desired choice: Ordnance Corps (39 percent), Quartermaster Corps (48 percent), and Chemical Corps (50 percent). Over 25 percent of the officers in Aviation, Signal Corps, Military Intelligence, Chemical Corps, Transportation Corps, Ordnance Corps, and

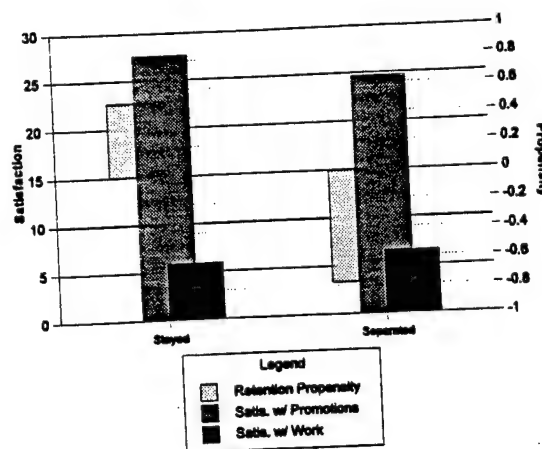


Figure 2. Scores on Retention Propensity, Satisfaction with Promotions, and Satisfaction with Work for Officers Who Stayed in and Separated from the Army

Quartermaster Corps left the Army. Branches showing the lowest separation rates were Adjutant General (15 percent), Corps of Engineers (16 percent), and Infantry (17 percent).

Minority Officers. Minority officers typically have higher retention propensity than white officers. Even so, forced branching could result in increased dissatisfaction and rates of retention. Whereas 73 percent of white officers received their most desired branch assignment, this was true for only 56 percent of minority officers (see Figure 1). Similarly, whereas only 15 percent of white officers did not get either their first or second choice, this was so for 33 percent of minority officers. It is unclear how much of this disparity between whites and minorities in receiving their desired branches was due to forced-branching, but minorities were more often assigned to branches they did not seek.

Whites and minorities responding to the LROC survey were equally satisfied with promotions and the work. For both groups of officers, being assigned to one's desired branch translates into increased satisfaction with

promotions but decreased satisfaction with the work (see Figure 3). To the extent that the higher quality officers are more likely to receive their choice of branch, this would suggest that the very best officers require more challenging duties to increase their work satisfaction.

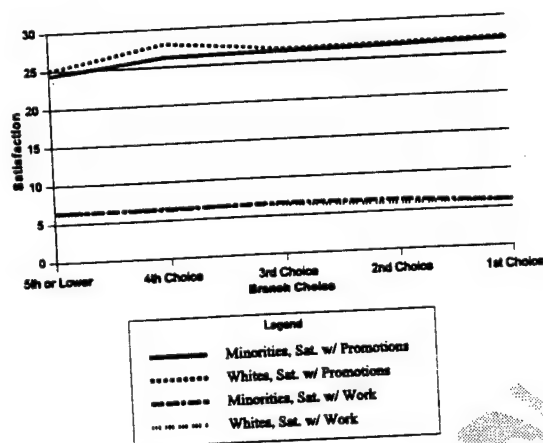


Figure 3. Trends Across Branch Choice in Satisfaction with Promotions and with Work for Minority and White Officers

Counter to the typical findings, minority officers reported slightly lower levels of retention propensity than whites in the LROC sample. The retention rates reflect this: 26 percent of minority officers separated, compared to 21 percent of white officers. The trends across branch choice suggest that a greater proportion of minorities than whites who did not receive their first or second choice of branch separated (38 percent and 18 percent, respectively). Hence, forced-branching could be eroding minority officers' propensity for Army service, resulting in higher separation rates.

Female Officers. Female officers generally have lower retention propensity than their male counterparts. Thus, forced branching could be particularly detrimental to retaining females in the officer corps. For the LROC survey sample, 74 percent of male officers received

their most desired branch assignment. By comparison, only 60 percent of female officers were assigned as desired. Similarly, whereas only 15 percent of male officers did not get either their first or second choice, this was so for 26 percent of female officers. Again, it is unclear how much of this disparity between males and females in receiving their desired branches was due to forced-branching, but females (like minorities) were more often assigned to branches they did not seek.

Males and females responding to the LROC survey were equally satisfied with the work and with promotions. Similar to the minority/white comparisons given above, both groups of officers displayed increased satisfaction with promotions but decreased satisfaction with the work as their branch preference increased.

For the LROC sample, retention propensity for female officers was lower than for males (as expected). The lower propensity for females translated into slightly higher separation rates (25 percent of females and 21 percent of males separate). Similar to the minority/white comparisons, the trends across branch choice indicated that females who did not receive one of their first two branch choices exhibited much higher separation rates than males who were likewise assigned (37 percent vs. 15 percent).

Implications: IT MIGHT BE EFFECTIVE TO BEGIN THIS SECTION WITH A QUOTATION FROM AN UPPER-LEVEL OFFICER GIVING HIS OR HER OPINION OF THE FINDINGS. FOR EXAMPLE: COL LEAHY (CHIEF, FUNCTIONAL AREA MANAGEMENT AND DEVELOPMENT DIVISION, TOTAL ARMY PERSONNEL COMMAND) STATED, "CLEARLY, WE MUST NOT BE TOO OVERZEALOUS IN OUR ASSIGNMENT OF MINORITIES AND WOMEN ACROSS BRANCHES. IT IS MORE IMPORTANT TO RETAIN THOSE OFFICERS SO THAT THE BEST PERFORMERS CAN BE PROMOTED TO THE HIGHER RANKS, AT THE EXPENSE OF EQUIVALENT DISTRIBUTIONS, THAN TO ACHIEVE SIMILAR DISTRIBUTIONS AT THE COST OF LOSING THOSE OFFICERS FROM THE ARMY." SUCH A QUOTATION WILL EMPHASIZE THE POLICY IMPACT OF THE LROC.

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Data from the LROC survey suggest that the costs of forcing disproportionate numbers of female and minority officers into non-desired branches for the sake of equally distributing them throughout the officer corps might outweigh the benefits. Minority and female junior officer retention and satisfaction with promotions are adversely affected by failure to receive a desired branch assignment. The findings regarding retention propensity and subsequent retention are particularly strong.

To the extent that forced branching increases separation rates for minorities and females, fewer officers from these special groups will be available to be promoted into the higher echelons of Army leadership. Army needs, which may override individual considerations, temper these results. The LROC data just presented are therefore of special interest to Army policy makers charged with meeting individual and institutional needs through branch assignment.

*FOR MORE INFORMATION ON THE FINDINGS FROM THIS
REPORT OR ON THE LROC SURVEY IN GENERAL,
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Appendix C: The 1992 Longitudinal Research on Officer Careers (LROC) Survey

LAST NAME, FIRST NAME



U.S. Army Research Institute 1992 Survey: Longitudinal Research on Officer Careers (LROC)

The U.S. Army Research Institute (ARI) is requesting Army officers to provide information on issues pertaining to their careers and their families. The data obtained will help policy planners improve the preparation, performance, and management of officers. The 1992 LROC survey is part of a long-term research project extending over several years. Therefore, as a member of our target sample, you should receive follow-up surveys so that we can examine changes in the officer corps over time. Thank you for completing the survey.

PRIVACY ACT STATEMENT

Public Law 93-573, called the Privacy Act of 1974, requires that you be informed of the purpose and uses to be made of the information collected.

The Department of the Army may collect the information requested in this survey under the authority of 10 United States Code 137. Providing information in this questionnaire is voluntary. Failure to respond to any particular questions will not result in any penalty.

The information collected in this survey will be used solely for research purposes. Social Security Numbers and names are requested only for tracking and control purposes.

Your responses will be held in strict confidence. No one outside the research team will have access to individual data.

MARKING DIRECTIONS

- Use ONLY a No. 2 black lead pencil.
- Do NOT use ballpoint or felt tip pen.
- Read each question carefully. Make a **HEAVY BLACK MARK** in the circle that corresponds to your answer. Be sure to **FILL THE CIRCLE**.
- Do NOT make any other marks on the page.
- Erase cleanly any answer you wish to change.
- Mark only one answer to each question, unless directed otherwise.

CORRECT MARK



INCORRECT MARKS



Please print your **SOCIAL SECURITY NUMBER** in the boxes below; then blacken the matching circle under each digit.

0 0 0	0 0	0 0 0 0
1 1 1	1 1	1 1 1 1
2 2 2	2 2	2 2 2 2
3 3 3	3 3	3 3 3 3
4 4 4	4 4	4 4 4 4
5 5 5	5 5	5 5 5 5
6 6 6	6 6	6 6 6 6
7 7 7	7 7	7 7 7 7
8 8 8	8 8	8 8 8 8
9 9 9	9 9	9 9 9 9

MARK ONLY ONE ANSWER, UNLESS OTHERWISE INDICATED.

I. BACKGROUND INFORMATION

1. What is your sex?

- ☐ Male
☐ Female

2. In what year were you born?

Enter the number of the year in the box, then blacken the corresponding digits below.

19

0
1
2
3
4
5
6
7
8
9

EXAMPLE: 19

54
0
1
2
3
4
5
6
7
8
9

3. What is your current marital status?

- ☐ Single, never married
☐ Single, engaged to be married
☐ Married
☐ Legally separated
☐ Divorced
☐ Widowed

4. How many children do you have (for whom you have custody)?

- ☐ None
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 or more

5. How old is your youngest child?

- ☐ NA — no children
☐ Under 2 years old
☐ 2-5
☐ 6-11
☐ 12-17
☐ 18 or over

6. What is your racial/ethnic background?

- ☐ White, not of Spanish/Hispanic origin
☐ Black, not of Spanish/Hispanic origin
☐ Spanish/Hispanic
☐ Asian or Pacific Islander
☐ American Indian, Aleut, Eskimo
☐ Other

7. What is the highest level of education you have attained?

- ☐ Some college
☐ Bachelor's degree
☐ Some graduate school
☐ Master's degree or equivalent
☐ Doctorate or professional degree



8. What was your undergraduate major field of study?

- ☐ NA — Not Applicable
- ☐ Humanities
- ☐ Social Sciences/Education
- ☐ Computer Sciences/Statistics
- ☐ Engineering/Applied Sciences
- ☐ Physical Sciences/Math
- ☐ Biological Sciences
- ☐ Business/Finance/Public Administration
- ☐ Nursing
- ☐ Pre-Medical/Dental
- ☐ Other

9. What is/was your graduate major field of study?

- ☐ NA — Not Applicable
- ☐ Humanities
- ☐ Social Sciences/Education
- ☐ Computer Sciences/Statistics
- ☐ Engineering/Applied Sciences
- ☐ Physical Sciences/Math
- ☐ Biological Sciences
- ☐ Business/Finance/Public Administration
- ☐ Nursing
- ☐ Medical/Dental
- ☐ Other

10. When you were growing up did you have a parent/guardian who was career active duty military?

- ☐ Yes
- ☐ No



11. What branch are you in? (Not detailed to)
(Choose only one)

COMBAT ARMS

- ☐ 11 - Infantry (IN)
- ☐ 12 - Armor (AR)
- ☐ 13 - Field Artillery (FA)
- ☐ 14 - Air Defense Artillery (AD)
- ☐ 15 - Aviation (AV)
- ☐ 18 - Special Forces (SF)
- ☐ 21 - Corps of Engineers (CE)

COMBAT SUPPORT

- ☐ 25 - Signal Corps (SC)
- ☐ 31 - Military Police Corps (MP)
- ☐ 35 - Military Intelligence (MI)
- ☐ 74 - Chemical Corps (CM)

COMBAT SERVICE SUPPORT

- ☐ 42 - Adjutant General (AG)
- ☐ 44 - Finance Corps (FC)
- ☐ 88 - Transportation Corps (TC)
- ☐ 91 - Ordnance Corps (OD)
- ☐ 92 - Quartermaster Corps (QM)

SPECIAL BRANCHES

- ☐ 55 - Judge Advocate General Corps (JA)
- ☐ 56 - Chaplain Corps (CH)
- ☐ 60-62 - Medical Corps (MC)
- ☐ 63 - Dental Corps (DC)
- ☐ 64 - Veterinary Corps (VC)
- ☐ 65 - Medical Specialist Corps (AM)
- ☐ 66 - Nurse Corps (AN)
- ☐ 67-68 - Medical Service Corps (MS)

12. If you could be in any branch you wanted, which branch would you select? (Choose only one)

COMBAT ARMS

- ☐ 11 - Infantry (IN)
- ☐ 12 - Armor (AR)
- ☐ 13 - Field Artillery (FA)
- ☐ 14 - Air Defense Artillery (AD)
- ☐ 15 - Aviation (AV)
- ☐ 18 - Special Forces (SF)
- ☐ 21 - Corps of Engineers (CE)

COMBAT SUPPORT

- ☐ 25 - Signal Corps (SC)
- ☐ 31 - Military Police Corps (MP)
- ☐ 35 - Military Intelligence (MI)
- ☐ 74 - Chemical Corps (CM)

COMBAT SERVICE SUPPORT

- ☐ 42 - Adjutant General (AG)
- ☐ 44 - Finance Corps (FC)
- ☐ 88 - Transportation Corps (TC)
- ☐ 91 - Ordnance Corps (OD)
- ☐ 92 - Quartermaster Corps (QM)

SPECIAL BRANCHES

- ☐ 55 - Judge Advocate General Corps (JA)
- ☐ 56 - Chaplain Corps (CH)
- ☐ 60-62 - Medical Corps (MC)
- ☐ 63 - Dental Corps (DC)
- ☐ 64 - Veterinary Corps (VC)
- ☐ 65 - Medical Specialist Corps (AM)
- ☐ 66 - Nurse Corps (AN)
- ☐ 67-68 - Medical Service Corps (MS)

13. Was your basic branch your:

- ☐ First choice
- ☐ Second choice
- ☐ Third choice
- ☐ Fourth choice
- ☐ Other

14. Do you intend to try to transfer into a different branch?
- ☐ No - not interested in changing branches.
 - ☐ No - I cannot get into the branch I want.
 - ☐ Yes - but I do not expect to get the branch I want.
 - ☐ Yes - and I do expect to get the branch I want.
 - ☐ Undecided, or don't know

Some officers are detailed from their basic branch to another (detail) branch.

15. Are you currently detailed to a branch other than your basic branch?
- ☐ Yes
 - ☐ No

16. If you answered "Yes" above, which branch are you currently detailed to?

- ☐ 11 - Infantry (IN)
- ☐ 12 - Armor (AR)
- ☐ 13 - Field Artillery (FA)
- ☐ 14 - Air Defense Artillery (AD)
- ☐ 74 - Chemical Corps (CM)
- ☐ Other

17. What functional area are you in?

- | | |
|---|--|
| <input type="radio"/> 35 - Military Intelligence | <input type="radio"/> 51 - Research and Development |
| <input type="radio"/> 39 - Psychological Operations/Civil Affairs | <input type="radio"/> 52 - Nuclear Weapons |
| <input type="radio"/> 41 - Personnel Management | <input type="radio"/> 53 - Systems Automation Officer |
| <input type="radio"/> 45 - Comptroller | <input type="radio"/> 54 - Operations, Plans and Training |
| <input type="radio"/> 46 - Public Affairs | <input type="radio"/> 97 - Contracting and Industrial Management |
| <input type="radio"/> 47 - USMA Permanent Faculty | <input type="radio"/> 99 - Combat Development |
| <input type="radio"/> 48 - Foreign Area Officer | <input type="radio"/> DK - Don't know/No preference |
| <input type="radio"/> 49 - Operations Research/Systems Analysis | <input type="radio"/> None |
| <input type="radio"/> 50 - Force Development | |

18. What functional area would you prefer if you stay in the Army?

- | | |
|---|--|
| <input type="radio"/> 35 - Military Intelligence | <input type="radio"/> 51 - Research and Development |
| <input type="radio"/> 39 - Psychological Operations/Civil Affairs | <input type="radio"/> 52 - Nuclear Weapons |
| <input type="radio"/> 41 - Personnel Management | <input type="radio"/> 53 - Systems Automation Officer |
| <input type="radio"/> 45 - Comptroller | <input type="radio"/> 54 - Operations, Plans and Training |
| <input type="radio"/> 46 - Public Affairs | <input type="radio"/> 97 - Contracting and Industrial Management |
| <input type="radio"/> 47 - USMA Permanent Faculty | <input type="radio"/> 99 - Combat Development |
| <input type="radio"/> 48 - Foreign Area Officer | <input type="radio"/> DK - Don't know/No preference |
| <input type="radio"/> 49 - Operations Research/Systems Analysis | <input type="radio"/> None |
| <input type="radio"/> 50 - Force Development | |

19. When did you begin your active commissioned service in the Army?

- ☐ Before 1980
- ☐ 1980
- ☐ 1981
- ☐ 1982
- ☐ 1983
- ☐ 1984
- ☐ 1985
- ☐ 1986
- ☐ 1987
- ☐ 1988
- ☐ 1989
- ☐ 1990
- ☐ 1991

20. What was the source of your commission?

- ☐ ROTC scholarship
- ☐ ROTC non-scholarship
- ☐ USMA
- ☐ OCS
- ☐ Direct
- ☐ Other

21. Upon commissioning from ROTC, were you designated DMG (Distinguished Military Graduate)?

- ☐ Yes
- ☐ No
- ☐ Not Applicable - I am not an ROTC graduate.

22. What is your current status?

- ☐ RA (Regular Army)
- ☐ OTRA (Other Than Regular Army)
- ☐ Other

23. What is your current rank?

- | | |
|---------------------------|------------------------------------|
| <input type="radio"/> 2LT | <input type="radio"/> MAJ |
| <input type="radio"/> 1LT | <input type="radio"/> LTC |
| <input type="radio"/> CPT | <input type="radio"/> COL or above |

24. What is your Major Command Headquarters?

- ☐ Forces Command (FORSCOM)
- ☐ Training and Doctrine Command (TRADOC)
- ☐ U.S. Army Europe and Seventh Army (USAREUR)
- ☐ Western Command (WESTCOM)
- ☐ Eighth U.S. Army, Korea (EUSA)
- ☐ Health Services Command (HSC)
- ☐ Southern Command (SOUTHCOM)
- ☐ Special Operations Command (USSOCOM)
- ☐ Secretary of Defense or Joint Activity (JCS, DIA, and other Defense Agencies)
- ☐ Army Intelligence and Security Command (INSCOM)
- ☐ U.S. Army Japan (USARJ)
- ☐ U.S. Army Materiel Command (AMC)
- ☐ Information Systems Command (USAISC)
- ☐ Military Traffic Management Command (MTMC)
- ☐ Criminal Investigations Command (CIDC)
- ☐ Corps Of Engineers (COE)
- ☐ U.S. Army Strategic Defense Command (USASDC)
- ☐ Military District of Washington (MDW)
- ☐ Other

25. How many years of active duty service have you completed (including any enlisted or warrant officer time)?

For single digit responses, start with "0."

For example, if you have 5 years active duty service, enter "05" in the boxes and blacken the "0" and the "5" below.

		years
0	0	
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	

26. How many years of active duty service do you *expect* to have completed by the time you leave the Army?

For single digit responses, start with "0."

		years
0	0	
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	

27. How many years of active duty service *would you like* to have completed by the time you leave the Army?

For single digit responses, start with "0."

		years
0	0	
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	

28. How many months do you have left in your obligated period of active duty service (including additional obligations incurred from PCS, military training, civilian schooling)?

Enter "00" if you have completed your current obligation.

		months
0	0	
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	

29. How many months ago did you complete your active duty service obligation?

Enter "00" if you have not yet completed your current obligation.

		months
0	0	
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	

30. What is your current total monthly military pay before taxes (including all special pays such as flight pay, parachute pay, BAQ, BAS, medical specialty pay, etc.)? Round to nearest dollar.

\$					dollars
0	0	0	0	0	
1	1	1	1	1	
2	2	2	2	2	
3	3	3	3	3	
4	4	4	4	4	
5	5	5	5	5	
6	6	6	6	6	
7	7	7	7	7	
8	8	8	8	8	
9	9	9	9	9	

31. Approximately what was your total family income from all sources (before taxes) in 1991? Round to the nearest thousand. (Blacken 99 if your total income was \$99,000 or more.)

\$					thousand dollars
0	0	0	0	0	
1	1	1	1	1	
2	2	2	2	2	
3	3	3	3	3	
4	4	4	4	4	
5	5	5	5	5	
6	6	6	6	6	
7	7	7	7	7	
8	8	8	8	8	
9	9	9	9	9	



CURRENT ASSIGNMENT

A. Supervision and Work

Please use the scale below to evaluate your supervisor/rater and the nature of the work in your current assignment. However, if you are currently in school or training, please evaluate your previous duty assignment.

Supervisor/Rater

- | | Very Good | Good | Fair | Poor | Very poor |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. Overall leadership effectiveness | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Recognizing/rewarding subordinates | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Technical competence | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Nature of the Work

- | | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 4. Opportunity to learn/develop skills relevant to your career | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. Opportunity to do work that interests you | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. Opportunity to exercise initiative/put your ideas into action | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

B. Assignments

7. In the left-hand column, which category below best describes the nature of your current duty assignment?

8. In the right-hand column, which category below best describes the nature of your previous duty assignment?

- | | 7.
Current
Assignment
SELECT
ONLY ONE | 8.
Previous
Assignment
SELECT
ONLY ONE |
|--|---|--|
| a. Platoon leader (or equivalent) | <input type="radio"/> | <input type="radio"/> |
| b. Company XO | <input type="radio"/> | <input type="radio"/> |
| c. Company commander | <input type="radio"/> | <input type="radio"/> |
| d. Staff officer | <input type="radio"/> | <input type="radio"/> |
| e. Special branch position
(e.g., Doctor, Nurse,
Lawyer, Chaplain) | <input type="radio"/> | <input type="radio"/> |
| f. Instructor/trainer | <input type="radio"/> | <input type="radio"/> |
| g. In military training/school | <input type="radio"/> | <input type="radio"/> |
| h. In civilian school | <input type="radio"/> | <input type="radio"/> |
| i. Other | <input type="radio"/> | <input type="radio"/> |

9. How many hours per week (on average) do you usually work in your current assignment?

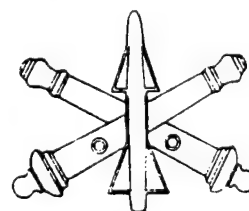
		hours
0	0	
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	

10. How many hours per week (on average) would you like to work on your job?

		hours
0	0	
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	

11. Under normal circumstances, what is the lowest number of hours that you might be asked to work in a week on your job?

		hours
0	0	
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	

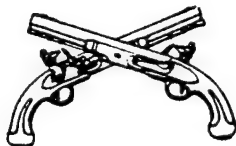


12. Under normal circumstances, what is the highest number of hours that you might be asked to work in a week on your job?

		hours
0	0	
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	
9	0	

13. How common is it for the number of hours you work per week to vary on this job?

- ☐ Very common
☐ Somewhat common
☐ Hard to say
☐ Somewhat uncommon
☐ Very uncommon



14. Do you think the Army should pay a bonus or overtime rate for excessively long hours worked in any week?

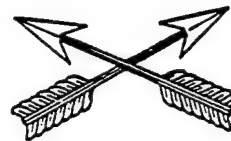
- ☐ Yes
☐ No

15. If yes, after how many hours per week should the bonus or overtime rate become effective?

		hours
0	0	
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	
9	0	

16. What do you think would be a fair hourly rate of pay for your current job? (Answer in terms of dollars per hour.)

\$		dollars per hour
0	0	
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	
9	0	



C. Satisfaction

Please use the scale below to indicate your overall level of satisfaction with the following aspects of Army life at the present time.

How satisfied are you with ...

- | | | | | | |
|--|---------------------|-----------|---------------------------|-------------|------------------------|
| 17. Personal and family life | Extremely satisfied | Satisfied | Neutral or mixed feelings | Disatisfied | Extremely dissatisfied |
| 18. Life as an officer | | | | | |
| 19. Support received from branch assignment officer(s) | | | | | |
| 20. Time available to pursue personal life goals | | | | | |
| 21. Relationships with superior officers | | | | | |
| 22. Relationships with peers | | | | | |
| 23. Relationships with subordinates | | | | | |

III. YOUR CAREER

A. Development and Support

1. Did you participate in the Junior Reserve Officer Training Program (JROTC) during high school?
 - ☐ No, there was no JROTC program at my high school.
 - ☐ No, I did not participate in JROTC in high school.
 - ☐ Yes, I participated in JROTC during the following grades (PLEASE MARK ALL THAT APPLY):
 - ☐ 9th grade ☐ 11th grade
 - ☐ 10th grade ☐ 12th grade
2. If you participated in JROTC in high school, what was the service branch?
 - ☐ Not applicable (no JROTC program or did not participate)
 - ☐ Army
 - ☐ Navy
 - ☐ Air Force
 - ☐ Marines
3. Did you attend a military high school?
 - ☐ No
 - ☐ Yes, I attended during the following grades (PLEASE MARK ALL THAT APPLY):
 - ☐ 9th grade ☐ 11th grade
 - ☐ 10th grade ☐ 12th grade

Please indicate your level of agreement with the following statements.

My pre-commissioning military training (USMA, ROTC, OCS) prepared me to...

4. master the requirements of my Branch Basic Course.....

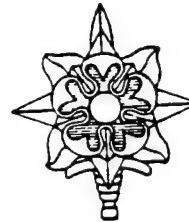
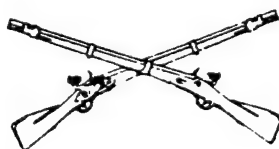
5. conduct oral presentations and briefings.....

6. write memos and short reports ..

7. be an effective officer

8. How close/far is the fit between your college major and your branch duties?

- ☐ Very close
- ☐ Close
- ☐ Borderline
- ☐ Far
- ☐ Very far



9. How close/far is the fit between your initial expectations vs. the reality of your branch duties?

- ☐ Very close
- ☐ Close
- ☐ Borderline
- ☐ Far
- ☐ Very far

10. How good are the opportunities for advancement in your branch for someone who has had the types of assignments you have had?

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Limited
- ☐ Very limited

11. How good are the opportunities for command in your branch?

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Limited
- ☐ Very limited

12. How competitive for schools and promotions would you be if you were to be evaluated right now taking the nature of your assignments, as well as your performance, into account?

- ☐ I'd have a strong advantage.
- ☐ I'd have an advantage.
- ☐ No advantage or disadvantage
- ☐ I'd be at a disadvantage.
- ☐ I'd be at a strong disadvantage.

13. Have you been treated any differently in your job or career because of your race or ethnic background?

- ☐ Yes, more positively
- ☐ Yes, more negatively
- ☐ No

14. Have you been treated any differently in your job or career because of your sex?

- ☐ Yes, more positively
- ☐ Yes, more negatively
- ☐ No

Please indicate your level of agreement with the following statements.

15. I am confident I will be promoted as high as my ability and interest warrant if I stay in the Army
16. The Army will protect my benefits and retirement
17. I am confident I will get the kinds of assignments I need to be competitive for promotions
18. I am very likely to get assignments that match my skills and interests if I stay in the Army
19. The officer evaluation/selection system is effective in promoting the best officers
20. The officer evaluation/selection system rewards officers for integrity and professionalism

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree



21. What are the primary sources of any uncertainty you have right now about what you could expect from an Army career? (Select as many as apply)
- ☐ My lack of experience in the Army
 - ☐ My career goals are unclear
 - ☐ Inconsistent or unclear selection criteria for officers
 - ☐ Changes in Army manpower needs
 - ☐ Impending Congressional actions (budget, RIFs, etc.)
 - ☐ I don't have any uncertainty
 - ☐ Other (explain in "Comments" section at the end of survey)

Please use the scale below to indicate how satisfied you are with the following aspects of Army life.

How satisfied are you with ...

22. Your current assignment
23. The quality of supervision you receive in your current assignment
24. The kinds of assignments you have had
25. The quality of information you have received about Army career options
26. Opportunities for informal contacts with superiors
27. Your current compensation (pay, allowances, benefits, etc.)
28. The respect and recognition given to officers in your career field
29. Social relations with peers
30. Your current job
31. Your career prospects in the Army

Very satisfied
Satisfied
Neither satisfied nor dissatisfied
Dissatisfied
Very dissatisfied

B. Individual Concerns/Ethics

32. I can generally influence the way things turn out in my life ☐ Strongly agree ☐ Agree ☐ Neither agree nor disagree ☐ Disagree ☐ Strongly disagree
33. I use several different strategies to handle the stress in my life ☐ Strongly agree ☐ Agree ☐ Neither agree nor disagree ☐ Disagree ☐ Strongly disagree
34. I can usually count on someone to provide me with the information or advice I need ☐ Strongly agree ☐ Agree ☐ Neither agree nor disagree ☐ Disagree ☐ Strongly disagree
35. I can usually find someone to help me or do me a favor if I need it ☐ Strongly agree ☐ Agree ☐ Neither agree nor disagree ☐ Disagree ☐ Strongly disagree
36. If I have a problem or concern, there is someone I can count on to listen and understand me ☐ Strongly agree ☐ Agree ☐ Neither agree nor disagree ☐ Disagree ☐ Strongly disagree
37. I have friends I enjoy spending time with after work ☐ Strongly agree ☐ Agree ☐ Neither agree nor disagree ☐ Disagree ☐ Strongly disagree

Use the following scale to answer questions 38-40.

At the present time, what level of strain, conflict, or stress—if any—are you experiencing ...

38. In your job ☐ None ☐ Very low ☐ Low ☐ Moderate ☐ High ☐ Very high
39. In your personal life ☐ None ☐ Very low ☐ Low ☐ Moderate ☐ High ☐ Very high
40. In your family life ☐ None ☐ Very low ☐ Low ☐ Moderate ☐ High ☐ Very high



41. In your capacity as an officer, have you ever been asked or pressured by a superior to do something you consider unethical?

☐ Yes
☐ No

42. Do you feel that unethical behavior is a problem in the Army Officer Corps?

☐ Not a problem at all
☐ A small problem
☐ A moderate problem
☐ A serious problem
☐ A very serious problem

C. Career Orientations

Please complete the next four statements (Questions 43-46) with the response that is most true for you.

43. If affordable, decent housing were available both on-post and off-post, I would generally prefer to live:

☐ On-post
☐ Off-post

44. Most important to my personal pride is:

☐ My service to the Army and the United States as a soldier
☐ My technical/professional skills

45. When I think of myself as a professional, I compare myself most often with:

☐ Army leaders whom I know and respect
☐ Those who are respected in my technical/career field whether or not they are in the Army

46. The kind of work I enjoy most is available:

☐ Only in the military
☐ Primarily in the military
☐ Equally in military and civilian world
☐ Primarily in the civilian world
☐ Only in the civilian world



47. All in all, how satisfied are you with your job?

- ☐ Very satisfied
- ☐ Satisfied
- ☐ Neither satisfied nor dissatisfied
- ☐ Dissatisfied
- ☐ Very dissatisfied

48. All in all, how satisfied are you with your career prospects in the Army?

- ☐ Very satisfied
- ☐ Satisfied
- ☐ Neither satisfied nor dissatisfied
- ☐ Dissatisfied
- ☐ Very dissatisfied

If you were to stay in the Army, to what extent would you expect to...

49. Participate in field exercises and/or combat training?

- ☐ Much more than I like
- ☐ More than I like
- ☐ About right for me
- ☐ Less than I like
- ☐ Much less than I like

50. Work in your functional area?

- ☐ Much more than I like
- ☐ More than I like
- ☐ About right for me
- ☐ Less than I like
- ☐ Much less than I like

51. Work in your branch?

- ☐ Much more than I like
- ☐ More than I like
- ☐ About right for me
- ☐ Less than I like
- ☐ Much less than I like

For some officers career plans change over time, while for others, career plans remain constant. Here we are interested in finding out whether or not your own plans have changed. Please use the following scale to indicate (to the best of your recollection) how you felt at the time of each event/experience described below.

52. When I began precommissioning training (e.g., USMA, ROTC, OCS) I was

53. At the time I received my commission I was

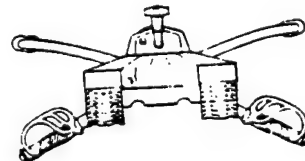
54. After my first leadership assignment (e.g., platoon leader) I was

55. After my first staff type assignment I was

56. At the end of the Advanced Course I was

57. After my first company command assignment I was

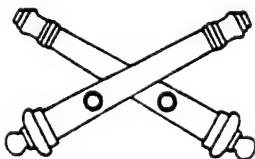
58. Right now I am



D. Attitudes and Perceptions

Use scale below to indicate your level of agreement with the following statements:

- Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
59. Civilians are more likely to share my values and beliefs than other officers
60. An Army career would allow me to attain the standard of living I want for myself/my family
61. One of the things I value most about the Army is the sense of community or camaraderie I feel
62. I foresee a lot of conflict between my work and my family life if I make a career of the Army
63. I would rather be affiliated with the Army than any civilian organization I know of
64. I would be happiest in a "traditional" marriage, where the husband makes the major decisions for the family
65. If I were to make the Army a career, I could maintain the kind of balance I want between my work and personal life



- Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
66. An officer's spouse should devote a good deal of time to unit and post activities
67. Even if I had an offer of a bit more pay from a civilian organization, I would be reluctant to leave the Army
68. A married woman who works should have the same opportunity as her husband to make long range plans for her career
69. I would discourage a close friend from joining the Army
70. The demands of an Army career would make it difficult to have the kind of family life I would like
71. I can count on Army people to help out when needed

72. Officers will have difficulty advancing their careers if their spouses do not get involved in unit or Army community activities

73. I frequently feel like leaving the Army

74. I am quite proud to tell people that I am in the Army

75. Even if a husband has a demanding career, he should share responsibility for housework and childcare

76. I feel I am really a part of the Army organization

77. For me, a rewarding career can compensate for limited personal/family time

78. I can get ahead in the Army doing the kinds of work I like best

79. If I were to stay in the Army, I could provide my family with the opportunities and experiences I think are most important

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree

E. Future Plans and Constraints

80. Which of the following best describes your current career intentions?

- ☐ I plan to stay in the Army beyond 20 years
- ☐ I plan to stay in the Army until retirement at 20 years
- ☐ I plan to stay in the Army beyond my obligation, but am undecided about staying until retirement
- ☐ I am undecided whether or not I will stay in the Army upon completion of my obligation
- ☐ I will probably leave the Army upon completion of my obligation
- ☐ I will definitely leave the Army upon completion of my obligation

81. How difficult do you think it would be for you to find a good civilian job right now, considering both your own qualifications and current labor market conditions?

- ☐ Very difficult
- ☐ Difficult
- ☐ Not particularly difficult or easy
- ☐ Easy
- ☐ Very easy

82. How difficult would it be for you to leave the Army in the next year or so, given your current personal or family situation?

- ☐ Very difficult
- ☐ Difficult
- ☐ Not particularly difficult or easy
- ☐ Easy
- ☐ Very easy

83. How difficult would it be for you financially to be unemployed for 2 or 3 months if you needed time to find a new job?

- ☐ Very difficult
- ☐ Difficult
- ☐ Not particularly difficult or easy
- ☐ Easy
- ☐ Very easy

A. Decision Factors

Listed below are some of the factors officers may consider when making career decisions. Please use the following scale to indicate the importance of these factors to your career decision.

	Extremely important	Very important	Important	Somewhat important	Unimportant (not a factor at all)
1. Pay	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Retirement benefits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Benefits other than retirement (e.g., medical, PX)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Assistance for civilian graduate education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Overall standard of living in the Army	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Opportunities to advance in your chosen field	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Opportunities for job satisfaction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Quality of co-workers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Your feelings about the organization mission/goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Working hours/schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Employment/educational opportunities for spouse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Spouse's overall satisfaction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Quality of childcare/schools/youth facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Time for personal/family life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Length of maternity/paternity leave available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Overall quality of life in military	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Level of integrity/professionalism in organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Personal freedom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Job security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Total family income	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Civilian job alternatives available to you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Slow down in officer promotions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In responding to questions 23-25, please select the three factors from questions 1-22 that are most critical to your own decision about staying in or leaving the Army. Please select only one response for each of the following questions.

23. Blacken the item number of the first most important factor. (Select only one choice)
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳ ㉑ ㉒
24. Blacken the item number of the second most important factor. (Select only one choice)
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳ ㉑ ㉒
25. Blacken the item number of the third most important factor. (Select only one choice)
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳ ㉑ ㉒

B. Civilian Alternatives

Please use the scale below to indicate how you perceive conditions in the military compared with conditions in a civilian job you could realistically expect to get.

	Much better in the Army	Somewhat better in the Army	About the same	Somewhat better in civilian life	Much better in civilian life	Don't know
26. Pay	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Retirement benefits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. Benefits other than retirement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. Assistance for civilian graduate education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. Overall standard of living	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31. Opportunities to advance in your chosen field	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32. Opportunities for job satisfaction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33. Quality of co-workers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34. Your feelings about the organization mission/goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35. Working hours/schedule	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36. Employment/educational opportunities for spouse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37. Spouse's overall satisfaction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38. Quality of childcare/schools/youth facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39. Time for personal/family life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40. Length of maternity/paternity leave available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41. Overall quality of life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
42. Level of integrity/professionalism in organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43. Personal freedom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44. Job security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45. Total family income	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ARMY LIFE EXPECTATION

In this section, we are asking about job conditions and career requirements you could expect if you were to stay in the Army. Next, you will be asked how you feel about these conditions.

1. How many weeks would you expect to spend away from home in a typical year (including TDY, field exercises, training, alerts, etc.)?

		<u>weeks</u>
0	0	
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	

2. How many unaccompanied tours (6 months or more) would you expect to have over the course of a 20-year career in the Army?

- ☐ None
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7 or more

3. In most Army assignments, how much flexibility would you have in your daily schedule to adjust your hours or take time off for personal or family reasons?

- ☐ Almost no flexibility
- ☐ A little flexibility
- ☐ Some flexibility
- ☐ A lot of flexibility
- ☐ Almost total flexibility

4. In most Army assignments, how much control would you typically have over the timing (i.e., length and when you leave) of trips or assignments that would take you away from home?

- ☐ Almost no control
- ☐ A little control
- ☐ Some control
- ☐ A lot of control
- ☐ Almost total control

5. How often are personal or family plans (vacations, family outings, special dinners, etc.) likely to be disrupted by job demands/Army requirements?

- ☐ Very seldom
- ☐ Occasionally
- ☐ About half the time
- ☐ Frequently
- ☐ Almost always

Now, please use the scale below to indicate how willing or reluctant you are to accept the conditions/requirements you expect in an Army career.

How do you feel about...

6. The number of weeks per year you would typically spend away from home?

7. The number of unaccompanied tours you would probably have over the course of a career?

8. The amount of flexibility you would have to adjust your schedule or take time off for personal or family reasons?

9. The amount of control you would have over the timing of trips/assignments that would take you away from home?

10. The frequency with which personal or family plans would be disrupted by job demands/Army requirements?

11. The average length of time you would stay in one location before a PCS?

12. The number of PCS moves over the course of your career?

Very reluctant to accept
Somewhat reluctant to accept
Mixed feelings or neutral
Somewhat willing to accept
Very willing to accept

NOTE

If you are married or planning to get married (or are formally engaged), please continue with the next section. It is important that you learn more about the background and feelings of other spouses and prospective spouses. If you are single, please turn to Section VII, Current Events, on page 19.

VI. SPOUSE/FIANCÉ(E) INFORMATION

Married and Engaged Officers Only

Please use the scale below to indicate how you think your spouse or fiancé(e) feels about the conditions/requirements you expect in an Army career.

How do you think your spouse/fiancé(e) feels about ...

1. the number of weeks per year you would typically spend away from home?

2. the number of unaccompanied tours you would probably have over the course of a career?

3. the amount of flexibility you would have to adjust your schedule or take time off for personal or family reasons?

4. the amount of control you would have over the timing of trips/assignments that would take you away from home?

5. the frequency with which personal or family plans would be disrupted by job demands/Army requirements?

6. the average length of time you would stay in one location before a PCS?

7. the number of PCS moves over the course of your career?

8. the social obligations traditionally performed by the spouse of an officer (clubs, volunteer work, attending and hosting social functions, etc.)?

Very reluctant to accept
Somewhat reluctant to accept
Mixed feelings or neutral
Somewhat willing to accept
Very willing to accept

9. How do you think your spouse/fiancé(e) feels about the general uncertainty of Army life (alerts, last minute schedule changes, short notice moves, etc.)?

- ☐ Very reluctant to accept
- ☐ Somewhat reluctant to accept
- ☐ Mixed feelings or neutral
- ☐ Somewhat willing to accept
- ☐ Very willing to accept

10. Please enter the year you were married, or if not married yet, the year you expect to get married. (If you expect to get married in the year 2000 or later, mark "0.")

19	
	0
	1
	2
	3
	4
	5
	6
	7
	8
	9

11. Is your family currently expecting a child (i.e., next 9 months)?

- ☐ Yes
- ☐ No

12. Does your spouse/fiancé(e) live in a different geographic area from you right now?

- ☐ Yes
- ☐ No

13. When your spouse/fiancé(e) was growing up, did he/she have a parent/guardian who was career active duty military?

- ☐ Yes
- ☐ No
- ☐ Don't know

14. Please indicate which best describes your spouse/fiancé(e)'s family background?

- ☐ Born and raised outside the U.S.
- ☐ American — military family background
- ☐ American — civilian family background

5. Has your spouse/fiancé(e) ever served in the military?

- ☐ No
- ☐ Yes, and left before we decided to get married
- ☐ Yes, and left after we were married
- ☐ Yes, and is still in, but intending to get out
- ☐ Yes, and is still in, but undecided about staying
- ☐ Yes, and is still in, and intending to stay

6. What is the highest level of education your spouse/fiancé(e) has attained?

- ☐ Less than high school degree
- ☐ High school degree or equivalent
- ☐ Some college, no degree
- ☐ Graduate of 2 year college or technical school
- ☐ Graduate of 4 year college
- ☐ Some graduate level work
- ☐ Master's degree or equivalent
- ☐ Doctorate or professional degree (e.g., M.D., J.D.)

7. Does your spouse/fiancé(e) plan to get additional education/training? (Answer one only)

- ☐ No
- ☐ Yes—High School diploma or equivalent
- ☐ Yes—Associate's degree
- ☐ Yes—Bachelor's degree
- ☐ Yes—Master's degree or equivalent
- ☐ Yes—Doctorate or professional degree
- ☐ Yes—Technical training
- ☐ Yes—Other training
- ☐ Don't know

8. Is your spouse/fiancé(e) currently in school?

- ☐ No
- ☐ Yes, part-time
- ☐ Yes, full-time

9. Does your spouse/fiancé(e) currently have a paying job?

- ☐ No—not interested in paid employment now
- ☐ No—wants paid work but is not currently looking
- ☐ No—is currently looking for a suitable job
- ☐ Yes—under 20 hours/week
- ☐ Yes—20-34 hours/week
- ☐ Yes—35-40 hours/week
- ☐ Yes—over 40 hours/week



20. If your spouse/fiancé(e) is currently working, do you feel that he/she is underemployed?

- ☐ Yes—spouse/fiancé(e) is working below his/her level of qualification.
- ☐ No—spouse/fiancé(e) is working at or above his/her level of qualification.
- ☐ NA—spouse/fiancé(e) is not working.

21. Is your spouse/fiancé(e) working at what is considered a professional-level job (i.e., one that typically requires college or college-level training)?

- ☐ NA—spouse/fiancé(e) not working
- ☐ Yes
- ☐ No

22. Approximately how much did your spouse/fiancé(e) earn (before taxes) in 1991? Round to the nearest thousand.

\$

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

 thousand dollars

23. Approximately how many months did your spouse/fiancé(e) work full-time (at least 35 hours per week) in 1991?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ Don't know

24. Which statement best describes your spouse's/fiancé(e)'s long-term work/career aspirations?

- ☐ Not interested in working for pay outside the home
- ☐ Interested only in occasional or temporary jobs
- ☐ Wants fairly continuous employment, but not career or advancement oriented
- ☐ Wants a career with advancement potential, but willing to postpone or interrupt career (e.g., for children, relocation)
- ☐ Wants a full-time career with advancement potential and no major career interruptions

25. How difficult do you think it will be for your spouse/fiancé(e) to get the kind of jobs/career opportunities she/he wants if you decide to make the Army a career?

- ☐ Very difficult
- ☐ Difficult
- ☐ Not especially difficult or easy
- ☐ Easy
- ☐ Very easy
- ☐ NA — Not interested in paid work
- ☐ Don't know

26. How difficult do you think it will be for your spouse/fiancé(e) to get the kind of jobs or career opportunities she/he wants if you left the Army at your next opportunity?

- ☐ Very difficult
- ☐ Difficult
- ☐ Not especially difficult or easy
- ☐ Easy
- ☐ Very easy
- ☐ NA — Not interested in paid work
- ☐ Don't know

27. Would you leave the Army if your spouse/fiancé(e) could not find the type of employment he/she wants?

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Don't know
- ☐ Probably no
- ☐ Definitely no

28. How does your spouse/fiancé(e) feel about your staying in the Army?

- ☐ Definitely wants me to stay
- ☐ Leans toward wanting me to stay
- ☐ Neutral or satisfied either way
- ☐ Leans toward wanting me to leave
- ☐ Definitely wants me to leave

29. What level of support for your decision can you expect from your spouse/fiancé(e) if you decide to make the Army a career?

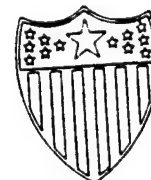
- ☐ Strong support
- ☐ Moderate support
- ☐ Neutral
- ☐ Moderate opposition
- ☐ Strong opposition

30. Overall, how satisfied is your spouse/fiancé(e) with the Army as a way of life?

- ☐ Very satisfied
- ☐ Satisfied
- ☐ Neutral
- ☐ Dissatisfied
- ☐ Very dissatisfied

31. How satisfied is your spouse/fiancé(e) with the support and concern the Army has for your family?

- ☐ Very satisfied
- ☐ Satisfied
- ☐ Neutral
- ☐ Dissatisfied
- ☐ Very dissatisfied



VII. CURRENT EVENTS

As a result of recent world events and the probability that the Army will become smaller, please indicate the likelihood that the following situations may occur:

- | | Very likely | Likely | Neither likely nor unlikely | Unlikely | Very unlikely |
|---|-----------------------|-----------------------|-----------------------------|-----------------------|-----------------------|
| 1. You will work more hours than you do now | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. You will be able to stay in the Army and be promoted on or ahead of schedule | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The best officers will stay in the Army | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. The best NCO's will stay in the Army | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. The best junior enlisted soldiers will stay in the Army | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. You will be involuntarily released from the Army | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
- How likely is it that troop reductions will result in the following:
- | | | | | | |
|----------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 7. Readiness will suffer | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. Morale will suffer | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9. Your family will suffer | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10. You will suffer | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

11. Do probable reductions in the size of the Army make you more or less interested in staying in the Army than you were a year ago?

☐ Much more interested
☐ More interested
☐ About the same
☐ Less interested
☐ Much less interested
☐ Undecided

12. How does the Army's involvement in the War on Drugs affect your career intentions?

☐ I intend to stay longer
☐ I intend to leave sooner
☐ No change in my career intentions
☐ Not sure

13. (Choose only one answer to the following question.)

As a result of recent world events, I believe that my Army duties ...

☐ Will allow me to have more personal and/or family time.
☐ Will require me to spend more time performing current or new tasks.
☐ Will require me to spend the same amount of time working as I do now.
☐ I am unsure how my time will be affected.

14. In the recent past, the Army has been called upon to deploy troops to certain regions of the world in response to urgent international situations. Did you personally deploy to any of the following locations? (Please mark all that apply.)

☐ Grenada
☐ Panama
☐ Saudi Arabia/Southwest Asia
☐ Other (Do not include PCS moves)
☐ None of the above

15. It would be fair to protect Operation Desert Shield/Storm veterans (i.e., those deployed to Southwest Asia) from reductions-in-force (RIFs).

☐ Strongly agree
☐ Agree
☐ Neither agree nor disagree
☐ Disagree
☐ Strongly disagree

16. It would be fair to give promotion advantages to Operation Desert Shield/Storm veterans (i.e., those deployed to Southwest Asia).
- ☐ Strongly agree
 - ☐ Agree
 - ☐ Neither agree nor disagree
 - ☐ Disagree
 - ☐ Strongly disagree
17. Officers deployed to Southwest Asia in support of Operations Desert Shield/Storm will experience:
- ☐ A small promotion advantage
 - ☐ A moderate promotion advantage
 - ☐ A large promotion advantage
 - ☐ No promotion advantage
 - ☐ A promotion disadvantage
18. Should women in the Army be required to take direct combat roles as men are, or should they be given combat roles only if they volunteer for them?
- ☐ Required to take combat roles the same as men
 - ☐ Only if they volunteer
 - ☐ Women should not be eligible for combat roles
 - ☐ Don't know
 - ☐ Unsure
19. Do you think women should be able to serve in combat units (e.g., infantry or armor) if they qualify?
- ☐ Yes
 - ☐ No
 - ☐ Don't know
20. Should women have the right to serve fully in all combat branches in the Army?
- ☐ Yes
 - ☐ No
 - ☐ Don't know
21. If women served in combat units, there would be an adverse effect on combat unit effectiveness.
- ☐ Strongly agree
 - ☐ Agree
 - ☐ Neither agree nor disagree
 - ☐ Disagree
 - ☐ Strongly disagree
 - ☐ Don't know
22. If there were no restrictions on branch assignments, I would prefer to be in:
- ☐ A combat arms branch (IN, AR, FA, AD, AV, SF, CE)
 - ☐ A combat support branch (SC, MP, MI, CM)
 - ☐ A combat service support branch (AG, FC, TC, OD, QM)
 - ☐ A special branch (JA, CH, MC, DC, VC, AM, AN, MS)

This section is to be completed by all officers.

VIII ECONOMIC ISSUES

In this section we ask about fringe benefits, money, work time and other jobs you may have. Some of these questions may be different from the kind you have encountered in previous surveys. We appreciate your cooperation in providing this information.

A. Fringe Benefits

Below you are asked to evaluate four fringe benefits in two dimensions: money and time. The situations that are proposed to you here are purely hypothetical. The Army is not considering eliminating these benefits. However, your realistic response will help us to assess the relative importance of the different benefits in a precise way and will hopefully aid the Army in planning their benefits package.

Please indicate below how much money per month (in dollars) you would be willing to pay out of your current income for each of the following benefits if they were not already provided by the Army. Note that we are not asking you to guess the actual price of these benefits; rather, we want to know how you feel about them personally.

(Consider each benefit separately and enter "000" if a benefit is not worth any money to you.)

Benefit

1. Retirement with half pay after 20 years
(Round to the nearest whole number in dollars)

\$

0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9

 dollars per month

2. Medical and dental benefits for self and immediate family
(Round to the nearest whole number in dollars)

\$

0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9

 dollars per month

3. Commissary Stores
(Round to the nearest whole number in dollars)

\$

0	3	0
1	1	1
2	2	2
3	2	3
4	4	4
5	5	5
6	4	6
7	7	7
8	2	8
9	9	9

 dollars per month

4. Army Exchange Service
(Round to the nearest whole number in dollars)

\$

0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	5	6
7	7	7
8	8	8
9	9	9

 dollars per month



Now we would like you to consider these benefits again. Only this time, please indicate below how much they are worth in terms of your time. That is, if these benefits were not already provided by the Army, how much longer per week would you be willing to work above and beyond your usual weekly hours (without additional pay) in order to get them? (Again, this is purely hypothetical.)

(Consider each benefit separately and enter "0000" if a benefit is not worth working longer for.)

5. Retirement with half pay after 20 years

Hours : Min. per week

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

0	0
1	2
2	5
3	3
4	4
5	0
6	0
7	7
8	0
9	9

6. Medical and dental benefits for self and immediate family

Hours : Min. per week

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

0	0
1	5
2	2
3	3
4	4
5	0
6	0
7	3
8	0
9	0

7. Commissary Stores

Hours : Min. per week

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

0	0
1	5
2	5
3	5
4	5
5	5
6	5
7	5
8	5
9	5



8. Army Exchange Service

Hours	Min.	per week
00	00	
01	01	
02	02	
03	03	
04	04	
05	05	
06	06	
07	07	
08	08	
09	09	

B. Other Jobs

9. Since receiving your commission, have you ever held another paid job outside of the Army?

- ☐ Yes
☐ No

10. How many weeks during the past 12 months have you worked at a paid non-Army job?

weeks
00
01
02
03
04
05
06
07
08
09

11. Are you currently working on another job outside of the Army?

- ☐ Yes
☐ No

If YES, please answer questions 12-13. If NO, skip to Section IX. Comments.

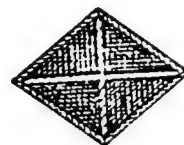
(If you are currently working on more than one paid non-Army job, please answer for the one on which you spend the most time.)

12. How much are you usually paid per month on the non-Army job? (Round to the nearest whole number in dollars.)

\$	dollars
0000	
0100	
0200	
0300	
0400	
0500	
0600	
0700	
0800	
0900	

13. How many hours per month (on average) do you usually work on the non-Army job?

hours per month
000
010
020
030
040
050
060
070
080
090



IX. COMMENTS

Thank you very much for your cooperation with this important research.

We have attempted to be very thorough in examining the issues that may affect an officer's career decisions. If you have comments that may help us to better understand officer career issues and decisions, please write them in the space below (continue on back if necessary).

We hope to get more in-depth information from a small group of respondents in the future. To facilitate finding you if you are selected, please enter below the name and address of someone who will always know how to get in touch with you.

NAME _____

ADDRESS _____

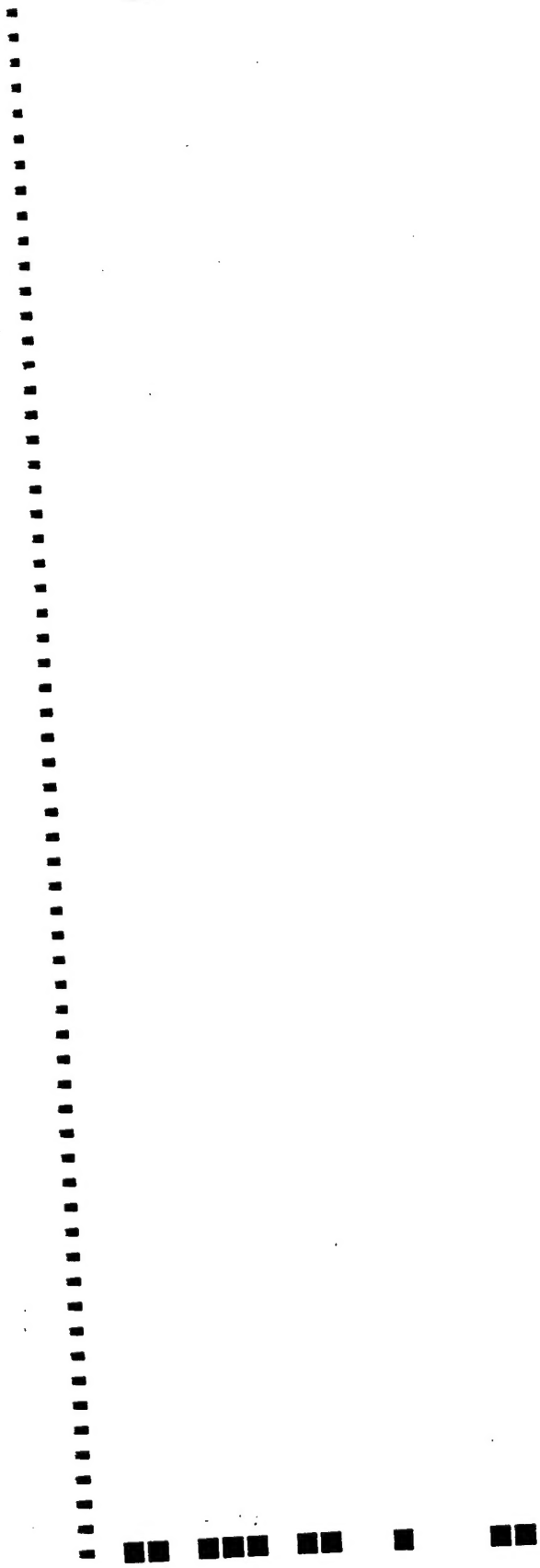
PHONE (_____) _____

WE GREATLY APPRECIATE YOUR COOPERATION IN COMPLETING THIS SURVEY.

PLEASE RETURN COMPLETED SURVEY TO:

AUTOMATION RESEARCH SYSTEMS, LIMITED
Longitudinal Research On Officer Careers (LROC)
Project Office
4501 Ford Avenue, Suite 1100
Alexandria, VA 22302

THANK YOU!



P4982-PFI-54321

Appendix D: Descriptive Statistics for the LROC Composites for the Total and Event History Samples

Table D-1
Descriptive Statistics for the LROC Composites: Total Sample

Composite	LROC Survey	N	Mean	SD	Alpha
Satisfaction with Supervision	1988	5,273	19.2	3.6	.79
	1989	5,259	18.9	3.7	.80
	1990	4,756	18.6	3.8	.82
	1992	4,353	18.8	3.7	.81
Satisfaction with Peers	1988	5,325	3.93	1.31	.76
	1989	5,313	3.99	1.30	.78
	1990	4,801	4.01	1.28	.77
	1992	4,392	4.01	1.24	.74
Satisfaction with Promotions	1988	5,244	27.1	5.4	.80
	1989	5,221	26.4	5.4	.80
	1990	4,732	26.6	5.4	.81
	1992	4,345	26.3	5.5	.82
Satisfaction with the Work Itself	1988	5,278	6.04	2.74	.84
	1989	5,278	6.14	2.77	.84
	1990	4,778	6.37	2.78	.83
	1992	4,383	6.19	2.73	.83
Tolerance of Military Demands	1988	5,300	19.0	4.8	.78
	1989	5,264	19.3	4.8	.79
	1990	4,780	19.6	4.9	.81
	1992	4,372	19.2	4.8	.80
Civilian vs. Army Standard of Living	1988	5,096	16.5	3.7	.77
	1989	5,112	16.8	3.8	.77
	1990	4,639	16.6	3.7	.76
	1992	4,273	16.3	3.7	.76
Civilian Market Ease of Entry	1988	5,317	9.73	2.72	.72
	1989	5,317	9.56	2.80	.73
	1990	4,805	9.38	2.84	.74
	1992	4,397	8.79	2.79	.73
Characteristics of the Job	1988	5,156	14.2	3.8	.80
	1989	5,168	14.2	3.7	.79
	1990	4,691	14.0	3.7	.80
	1992	4,303	13.8	3.6	.80
Organizational Identification	1988	5,273	26.3	4.4	.78
	1989	5,233	26.0	4.5	.78
	1990	4,760	26.1	4.4	.79
	1992	4,364	26.0	4.3	.76
Retention Propensity	1988	5,302	-0.000	1.92	.91
	1989	5,281	0.005	1.92	.91
	1990	4,775	0.005	1.91	.91
	1992	4,356	0.007	1.92	.91

Table D-2
Descriptive Statistics for the LROC Composites: Event History Sample

Composite	LROC Survey	N	Mean	SD
Satisfaction with Supervision	1988	377	19.2	3.6
	1989	795	18.6	3.7
	1990	1,003	18.4	3.8
	1992	930	18.9	3.5
Satisfaction with Peers	1988	383	3.71	1.33
	1989	802	3.87	1.38
	1990	1,008	3.88	1.30
	1992	932	3.89	1.22
Satisfaction with Promotions	1988	377	27.3	5.1
	1989	795	26.4	4.9
	1990	997	27.2	5.0
	1992	929	26.7	5.1
Satisfaction with the Work Itself	1988	375	6.22	2.66
	1989	797	6.57	2.72
	1990	1,002	6.71	2.73
	1992	932	6.29	2.54
Tolerance of Military Demands	1988	382	18.7	4.6
	1989	799	18.5	4.9
	1990	1,007	18.6	4.9
	1992	933	18.7	4.9
Civilian vs. Army Standard of Living	1988	372	16.2	3.6
	1989	788	16.8	3.4
	1990	990	16.7	3.2
	1992	920	16.4	3.5
Civilian Market Ease of Entry	1988	382	9.99	2.64
	1989	803	9.93	2.64
	1990	1,011	9.82	2.73
	1992	935	8.95	2.69
Characteristics of the Job	1988	371	14.3	3.9
	1989	790	14.9	3.8
	1990	998	14.4	3.7
	1992	929	14.3	3.9
Organizational Identification	1988	380	25.8	4.2
	1989	733	24.9	4.6
	1990	921	25.5	4.4
	1992	932	25.6	4.3
Retention Propensity	1988	381	-0.665	1.76
	1989	795	-0.908	1.85
	1990	1,005	-0.737	1.87
	1992	929	-0.626	1.88